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ACADEMIC COOPERATION ASSOCIATION

Internationally competitive universities.

A study for Arengufond.

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Contents

Executive summary

This study was produced by Bernd Wächter, of the Brussels-based Academic Cooperation Association (ACA), and Neil Kemp, of Neil Kemp Education Ltd. (UK), for Arengufond, the Estonian Development Fund. It was written between mid-November 2009 and mid-January 2010 and, until mid-March 2010, modified twice, as a result of comments from Arengufond.

The study explores what makes universities "internationally competitive", a concept which is not immediately self-explanatory. In order to avoid misunderstandings, the authors agreed with Arengufond that the study would focus on two related but, as such, separate themes. First, it was to identify the key characteristic traits of internationally competitive universities and the measures to be taken to build such. In this endeavour, a very wide range of issues was to be covered, such as funding, governance, management and organisation, staff and students, and the relationship to the state, for example. Second, it was to explore in depth the issue of internationalisation in higher education, and its possible role in and contribution to the creation, development and running of internationally competitive universities. It was agreed with Arengufond that the authors would put the main emphasis on this second set of themes (internationalisation), but also demonstrate its interrelatedness with the first set of issues.

As was agreed with Arengufond, the findings of the study are based on a review of recent relevant literature (official as well as grey) and on the two authors' knowledge of and experience with the themes of higher education internationalisation and excellence in tertiary education.

Estonian higher education

As a means to provide contextual information, the report starts with a short assessment of the state of higher education in Estonia.

Estonian higher education has made impressive progress since the country's independence two decades ago. Since then, Estonia has expanded the sector drastically, with one of the highest study participation rates in the world. It has created a differentiated system of institutions with different missions at different levels. It has consistently introduced the Bologna reforms. It has financed the expansion of the sector partly by the introduction of fees for non-state-financed study places and a private higher education sector. It has two universities which, if not belonging to the league of international leaders, are well-reputed outside of the country. Estonia has also made a strong effort in the area of internationalisation, particularly in mobility.

Despite this progress, there are major challenges. Funding of higher education is not ample (1.4% of GDP, slightly under the OECD average of 1.5%) and funding of research is even slightly weaker. In the area of internationalisation, the undoubted successes in outbound mobility contrast with relatively low numbers of incoming international students. The growth of

a college and private sectors, as such desirable, has led to the creation of a relatively large number of small institutions, turning part of the system somewhat 'fragmented'. The biggest challenge for Estonian higher education lies in the country's demographics, which have the potential to drain the sector of students. This will at some stage also affect the number of available young doctoral students and postdoctoral fellows and ultimately of senior researchers and is likely to stand in the way of any attempts to raise the performance of the sector further and to create 'internationally competitive universities' – unless the students and researchers can be found elsewhere.

Internationally competitive universities

The term 'internationally competitive university' is very rarely used in the literature and the present higher education debate. The focus of recent publications has been on 'world-class universities'.

The emergence of the 'concept' of and the global debate on the 'world-class university' is closely linked to the emergence of international higher education rankings in the last decade (THE-QS, ARWU, etc.). A world-class university is one which is ranked among the top 100 or 200 in these international league tables. The (mainly research-focussed) indicators used in the international rankings have thus become the measure for 'world-class'. All leading authors point out that this leads to a reductionist concept of excellence and does not do justice to the different missions and types of higher education. They stress that a world-class university has rarely been established without the 'undergrowth' of a vertically stratified and horizontally diverse higher education system.

Characteristics of world-class universities

The terms *internationalisation* or *concentration of talent* describe the first set of characteristics of world-class universities. World-class universities are able to attract the very best academics and students and, since talent is equally distributed across the globe, this automatically leads to a high degree of foreign students and staff. Institutions which practice 'endogamy', i.e. which favour the own country's students and researchers, are not able to perform at the top end. As to students, the right of a university to select its students is crucial for enrolling top performers. Institutions which (are forced to) opt for open admission almost never reach world class quality. As to staff and researchers, universities must be free to hire and fire, to decide autonomously on salary and other remuneration levels and working conditions, and must advertise positions and recruit internationally. Since high achievers are sought after world-wide, selectivity in staff recruitment leads to very high salary cost. Top researchers are unlikely to accept universities which do not let them operate in globally widely spoken languages, mostly English.

As indicated, world-class universities need *abundant financial means*. Though varying from case to case, most world-class universities do not rely on one source of funding only. Classically, they have (a) a base allocation from the government, (b) win funds through competitive tenders from private and government sources (such as research councils), (c) create revenue from tuition fees, and (4) avail of funds of their own (i.e. 'endowments'). There is some controversy about the right mix of funding (particularly between regular state appropriations and competitively won research contracts) as well as about the question

whether private or state institutions are better equipped to reach world class status. However, authors agree that a substantial government investment is a *conditio sine qua non* in almost all cases and that the number of purely privately funded (for profit) world-class universities is likely to remain limited in the future. The literature is agreed that endowments substantially strengthen a university, also by making it independent from changing government priorities, but outside of the US substantial endowments are very rare and it takes a long time to build up critical mass.

Appropriate *governance and management* practices are the third important characteristic of world-class universities. There is consensus that top-performing institutions require a high degree of autonomy. Autonomy can be differentiated into an 'external' and an 'internal' dimension.

The external dimension relates to the freedom from intervention by third parties (above all the state). Beyond that, 'academic freedom' must be guaranteed, i.e. the absence of limitations (of an ideological, political or religious sort) to the free pursuit of teaching and research. But world-class institutions enjoy greater freedoms. They are free to use their resources (funds) as they please, they can set their own development plans, they are able to determine the focus of their research and decide on their own curricula, they may select their students (competitively), they can set their tuition fees freely, they can select, hire and fire staff and autonomously decide on their salary and benefits.

The 'internal dimension' of autonomy refers to issues of leadership. There is agreement that the position of the University President (or Vice-Chancellor / Rector) must entail far-reaching powers (as opposed to a *primus-inter-pares* model), that the leadership of strongly-performing institutions has to develop a vision, mission and development plan, and, most important, that it must have the ability to make all faculty and staff 'buy into' the common aims and targets. This consensus of all involved must be renewed constantly. A number of authors insist, additionally, that 'internal autonomy' is not total self-governance. Internal steering bodies composed solely of university members (for example in the university senate) must be complemented by governing boards with outside representation (of the private sector and civil society).

In addition to the above issues, i.e. the concentration of talent (internationalisation), funding and governance, some authors stress further aspects of world-class universities. One of them is that they are usually 'multiversities', i.e. that they are research as well as teaching institutions, that they offer almost the entire disciplinary spectrum and that they are large (in terms of student and staff numbers), though not giant. Another aspect is that world-leading universities devote considerable energy to graduate (PhD) education and all offer structured PhD training, in the form of graduate schools. On a third aspect, an 'entrepreneurial' orientation of world-class universities, there is no consensus. While everybody agrees that universities should capitalise on the results of their work (intellectual property rights), there is scepticism about whether world-class universities should involve themselves directly in markets, like corporations. Fourth, it can be observed that world-class universities engage in international research cooperation and linkages with their counterparts abroad.

Creating world-class universities

What characterises a world-class university (key features) is one question, how to create one another. The literature shows a variety of approaches, which can be broadly categorised into 'upgrading' and 'merging' of existing universities and creating new ones. Approaches can also be differentiated into institutional ones, concerning one university only, and system-wide ones.

Upgrading institutions to attain world-class status is empirically the most common approach. Upgrading obviously presupposes an existing stock of decent-quality institutions. Upgrading invariably involves non-egalitarian 'positive discrimination', i.e. the preferential treatment of one or a number of institutions over all the others. At a systems' level, China has operated this approach with considerable success since the mid-1990s ('211 Project' and '985 Project'). Selected universities have received considerable extra funds, and have been granted freedoms for setting salary levels or organising postgraduate training (graduate schools) not otherwise existent in a highly regulated system, and they have been allocated the best Chinese school graduates. These internal measures were complemented by a set of incentives to retain and, more often, to re-attract top researchers from abroad, or anyway keep them in touch with China.

The Chinese example is impressive in its dimensions (for an emerging economy, at any rate), but it is in many characteristic features quite typical of national upgrading initiatives around the world. At least twenty countries globally have embarked on similar ventures, such as Germany with its 'Excellence Initiative', Japan with its '21st Century Centers of Excellence', or Korea with its 'BK21 Project'). They all focus on the development of research capacity (including, importantly, research training, mostly in graduate schools) and they all work on the basis of "positive discrimination". They identify the best institutions and centres in the country, viewed as having substantially more potential than the average, and they reward them by sizeable extra funding (and privileges). They also seek to re-attract emigrated top scientists and retain such still in the country.

Merging existing institutions is the second approach to build world-class. Mergers are of course occurring constantly in higher education around the world, in order to overcome the fragmentation into too many too small institutions, to do away with outmoded structures (academies of science in former Warsaw Pact countries), or generally to overcome system inefficiency, and they often have little to do with the quest for world-class institutions. In some cases, however, mergers have been created with the main goal of creating an internationally leading research university. An example is the University of Manchester, created out of the Victoria University of Manchester and UMIST in 2004. As the case exemplifies, mergers offer many advantages, but they also bear risks. The advantages are (1) increased size, or "critical mass", (2) synergies and cross-fertilisation between different research and teaching units and (3) a better position in the national and international league tables. On the other hand, there are risks: the creation of a new collective identity of the faculty and staff of the former institutions might fail, and conflicting institutional self-concepts and academic cultures might continue to exist; the promise of economies of scale might remain unfulfilled, due to resistance against the abolition of duplication of staff, academic programmes and research units; institutions merged out of lofty ambitions might give in to the temptation of hiring superstar professors they cannot really afford. Scale is not a virtue as such, and above a certain size (of a few hundred thousand students), it turns into the opposite.

Creating new universities is a third potential avenue to world-class quality and most expensive of all. The Indian Institutes of Technology (IITs), created between 1951 and 2001, provide an example of successful 'from scratch' operations, as does the recently set-up Paris School of Economics (which is, however, a hybrid between a merger and a new creation). However, in a number of respects, the Indian approach is reminiscent of the Chinese upgrading exercises. The IITs are an example of 'preferential treatment', i.e. they avail of better funding than the rest of the higher education system, and they enjoy a higher degree of freedom in academic affairs, governance and administration, compared with most other Indian universities. There are a number of advantages of the 'from scratch' approach: it is easier to introduce a new academic culture from the start than to change an existing one. It is politically easier to grant academic freedoms and space of manoeuvre in management and governance in entirely new institutions. It is easier to introduce new admission logics and to put in place different reward systems.

Beyond the above three basic approaches, there are a number of other aspects that must be borne in mind when creating world-class universities.

Articulation with the rest of the system: world-class universities usually thrive only on the basis of a sufficiently broad and institutionally diverse overall higher education system. The architecture of the California higher education system with its three-layer structure can serve to illustrate this. The first layer consists of fairly open-access vocationally oriented community colleges (today an essential element of the entire US system, first introduced in California). The middle tier is made up of multi-purpose state universities, and the top layer consists of high-quality research-driven universities. All three have different missions and are funded in different ways. Today, California has close to 500 tertiary institutions, only a small fraction of which are research universities. But among the 20 top-placed universities in ARWU in 2009, an astounding six were from California.

Clustering and networking: for many institutions, the competition for top researchers is hard to win, for these tend to concentrate in single institutions, making it unlikely that an institution is able to keep one or two top performers. It either has a fair number, or none. A coping strategy can be close alliances between institutions, at a national or international level, to reach the critical mass of researchers and research capacity the institutions would not attain alone. France is trying to establish such 'clusters' at a national level now, and many institutions have entered into strategic international partnerships for this purpose.

Positive discrimination: as became apparent before, positive discrimination (preferential treatment) is a key strategy to raise quality levels internationally. The principle is to select themes and disciplines of strategic (national, institutional) interest, and, second, to provide very considerable extra funds to those existing researchers, research teams or whole institutions which are best in the identified areas (it might also entail building new teams and centres, where necessary). In other words, excellence is being rewarded and mediocrity (or worse) punished, leading to a concentration of funds. In some systems, this principle is being applied in a radical way. Korea regularly evaluates the success of its BK21 projects, and it increases in the following round the share of funding for the top performers and decrease the proportion of funding flowing to less successful projects.

Internationalisation: we have mentioned internationalisation as a strategy to attain world-class standards already in the context of the competition for the best brains, but the literature identifies a wider internationalisation approach as contributing to quality enhancement too. Activities mentioned are international linkages, the exchange of students and staff, and tuition in English, amongst others.

Understanding internationalisation

Only at a first glance is internationalisation a simple phenomenon. In fact, it is multi-dimensional, covering both the institutional and the systems level, relating to research as well as teaching and other services, and it has different foci in different parts of the world. Internationalisation is both a reaction to globalisation, and a force which (partly) shapes it. On the basis of the activities involved, it is possible to broadly categorise into 'internationalisation at home' and 'internationalisation abroad'.

Various organisations and researchers have tried to operationalise the phenomenon of internationalisation, and to provide criteria to assess it. The criteria of the North American NAFSA are mainly related to international student mobility. The methodology of the American Council of Education is mainly geared to research-led universities. Leading researchers on institutional internationalisation strategies have made a distinction into 'programme' and 'organisational' strategies. Research-led universities tend to focus on joint research cooperation, mainly with partners in the US and Europe. It is apparent that different countries have different emphases: the UK, New Zealand, Australia and Singapore focus on foreign student recruitment, the US focuses on (short-term) study abroad and curricular internationalisation, the Nordic countries also focus on outbound student mobility and they are very active in 'internationalisation at home', particularly through English-taught programmes, and countries with a fast-growing demand in higher education, such as Malaysia or Vietnam, prioritise attracting foreign providers. Almost regardless of country, internationalisation is most advanced in the subject areas of business, management, finance and economics, driven by student demand.

Leading researchers have devoted considerable effort to identifying the motives (rationales) driving internationalisation at the national and institutional level. The consensus is that in concrete cases, a multiplicity of rationales is at play. Supporting the growth of a knowledge economy is a frequent motive at the national level, which results in international research partnerships and the attempt to attract high-quality foreign graduate (mainly PhD) students and postdoctoral fellows, particularly in STEM subjects. A second (closely related) rationale is to meet a country's skills gap, by attracting students from abroad who later stay and strengthen the host country's labour force. A third rationale, which also applies to institutions, is to create revenue, for the receiving country (trade in educational services) and the university (full-cost or higher tuition fees). A further set of motivations can be described as the pursuit of public diplomacy benefits, accrued through alumni who become 'mini ambassadors' of their host country after return, by supporting trade and political and diplomatic advantages. A last effect of internationalisation (if not always an explicit rationale) is to increase an institution's or system's competitiveness.

Of all emanations of higher education internationalisation, the cross-border migration of students is the most visible one. In countries with tuition fees at a considerable level, such as

the UK, the US or Australia, income from international student fees has by now become a key element of funding, especially in the light of falling (per capita) government contributions. On top of that, the influx of foreign (graduate) students is essential for keeping up the research capacity of universities in the US and the UK, but increasingly also continental Europe.

Delivering internationalisation

Background

The number of internationally mobile students has fast risen over the last fifty years, at about four percent per year, and at about seven percent in the past decade, and stands at present around three million. Future projections see this number rise to over seven million by 2025. This growth is not expected to be evenly divided, but to concentrate on certain host countries. The largest 'importers' of foreign students are the US (about 600,000), followed by the UK (350,000), Germany and France (250,000 each). Controlled for size, Australia is most successful (far above 20 percent of total enrolment). Some countries display a risky over-dependence on one particular source country, with a share of over 20 percent of all its foreign students (such as the Netherlands, who heavily depend on Germans). In terms of source countries, China is the global leader (about 450,000 students), followed by India (150,000) and Korea (100,000), Germany and France. Chinese and, even more so, Indian numbers are expected to continue to grow in the future. From among European countries, Germany is the biggest exporter (86,000), followed by France (63,000), Turkey (59,000) and Russia (51,000).

There are no reliable data on demand for study places from international students by level of study. In terms of actual enrolment, the picture differs between receiving countries, with a majority of foreign students in Australia at the Bachelor level, and about an equal share of undergraduate and graduate students in the US and the UK. Level of study enrolment also differs sharply by source country. As mentioned, the leading subject areas are management, business, finance and economics.

In Europe, at any rate, there has been a considerable demand for applied, professional programmes at the Masters level, especially, but not only, in the UK. Likewise, there is increasing supply in (and enrolment) English-taught Master programmes outside of the UK and Ireland, especially in the Netherlands and in the Nordic countries. In the Netherlands, English is on the way to becoming the dominant language in postgraduate education. It is apparent that particularly countries with internationally less-often spoken languages apply this strategy to increase foreign enrolment.

Finance and pricing

As the – scarce – information and data available on the funding of international study show, the main sources are the students themselves (own funds, family funds and loans). Despite of this, and of the often high fees and living costs, the market for international study, especially at the postgraduate level, is does not yet appear to be very price-sensitive. However, shorter programmes which are proportionally cheaper, are in high demand (for example the UK Master, which can be gained in a single year).

Motivations: why students seek to study abroad

The factors that govern decisions on study abroad vary by country of origin and destination, level of study and subject area. Generally, 'push' and 'pull factors' come into play. 'Push factors' include the lack of study places in the home country, or the lack of quality in higher education. 'Pull factors' are, first, the perceived quality and reputation of the destination country's higher education, as well as relative cost, personal security, cultural attractiveness and lifestyle aspects, family/personal links, geographic proximity, and climate. Future employment prospects (at home, in the country of destination, or in third countries) also often play a role, as well as the opportunity to study a programme taught in English.

Many prospective students make their decision dependent on information received by 'word of mouth', from friends, alumni and teachers. National and institutional websites are a further important source of country decision (and more so of institutional choice).

Barriers to international student recruitment

Obstacles to the study of foreign nationals vary between countries, but they comprise the following.

- Linguistic impenetrability (lack of programmes taught in English)
- Lack of programmes in most sought after disciplines, i.e. management, business and finance; computing and IT; electronics; and economics
- Lack of opportunities in flexible and distributed learning
- Lack of scholarships (including cost reductions), particularly in competitive subject areas at the Master and PhD level (STEM subjects)
- Complicated immigration rules and lack of (part time) employment opportunities
- Cumbersome and lengthy admission and recognition procedures
- Lack of international marketing and promotion (national and institutional websites, presence at fairs, advertisments, in-country presence, agents, etc).

International mobility of Estonian students

The international mobility of Estonian students is high, and stands in marked contrast to the relatively modest inflow of foreign students into Estonia. We would like to suggest that Estonia monitors to learn how many of its outgoing students return to Estonia (immediately after study or later) and, to the extent they return, what is their contribution to the development of the higher education institutions, the society and the economy in Estonia.

Internationalisation, staff recruitment and skilled migration

In countries which put a strong emphasis on the recruitment of foreign students and researchers, such as Australia, a trend can be observed to link policies aimed at student / staff recruitment to those seeking to attract skilled (highly qualified) labour. These have generally concentrated on areas of skills shortages on the labour market. In attracting junior researchers, US institutions have concentrated science and engineering. After graduation, more than half of these persons stayed on the US (inside or outside of academia), providing the labour market with high-quality knowledge workers.

International partnerships

Research partnerships are a vital internationalisation tool, which significantly contribute to an institution's scientific output and quality. Various studies have underlined that peer reviewed papers emanating from internationally collaborative ventures are more highly cited than those published by mono-national teams, especially if the research partner is strong in scientific terms (and frequently located in the US). More generally, a link can be observed between scientific performance and the number of international (quality) alliances and partnerships. Many of these linkages exist at the level of individual research teams, but increasingly institution-wide consortia are being formed, mostly of a multilateral set-up (Universitas 21, LERU), although their effectiveness has yet to be fully assessed.

Case studies

In order to exemplify the findings of this study on 'internationally competitive' (world-class) universities, but also on internationalised universities, we produced four short case studies.

The first one, focusing at the national as well as the institutional level, shows how Singapore managed to become a regional higher education hub, by making higher education one of the drivers of economic development, and by attracting international students and foreign universities. As part of this development, and amongst other measures through strategic international research partnerships, the country's flagship institution, the National University of Singapore, rose to the ranks of internationally leading research universities in a few decades only.

The second example is the University of Warwick, which in barely 40 years established itself as an alternative to Oxford and Cambridge, by slowly extending its original strength in mathematics to other areas, by growing strong interdisciplinarity, and especially by building very strong links with business and industry, earning it the name of 'Warwick University Limited'.

The third example, the University of California at San Diego, is an illustration of the fact that strong universities grow best within an overall system of vertically stratified and institutionally varied higher education, which is the case in California. Established only 50 years ago, the institution boasts eight Nobel Laureates, and spends close to 800 million USD$ on research. Its business and industry links are one of its strengths, and its outreach into the region is impressive: some 200 San Diego companies have been founded by USCD faculty and alumni and almost half of the San Diego biotechnology industry workforce originated from the university.

Maastricht University, our fourth example, founded in 1975, turned its disadvantage, a peripheral location far from the country's centre, into an asset, by defining itself from the outset as a European rather than Dutch institution, and putting (at the time) unusual efforts into internationalisation. It extended from its core in medical science systematically into other fields, it put an emphasis on applied research and cross-disciplinarity, and it invented 'student centred learning' long before this concept became prevalent. Most of all, it managed to attract strong leaders, which pushed developments and became the international 'face' of the institution.

Conclusions and implications

The future of higher education around the world

In most parts of the world, and particularly in Asia and in emerging economies, demand for higher education will grow and, as a result, supply will also increase. For these regions and countries, we expect continuing growth in gross enrolment rates. In parallel with this trend at the national level, we expect demand for study abroad from these regions and countries to rise.

In contrast to the above, and as a result of demographic declines, many OECD countries are facing decreasing enrolments. This trend is likely to affect some emerging economy countries in the long run too, such as China with its one-child policy, though probably only in a few decades, since the decline of age group cohorts will for a long time be compensated by rising enrolment rates.

We expect radical changes in the delivery modes of higher education in the coming decades, through advances in information and communication technology, even though we do not predict the demise of the brick-and-mortar university. It is, however, impossible to forecast the exact nature of the changes ahead.

The cost of higher education is spiralling in most countries around the globe, and this trend is likely to persist. Under these conditions, anything but a reinforcement of the present shift of the cost from the public purse to the consumer (student) would be a big surprise. As a result of increased cost on students (or their families), we believe that these consumers will become more demanding in the future.

The competition for international students (and faculty), particularly in the postgraduate segment, is likely to continue and will probably be reinforced. This will lead, amongst other things, to increased international marketing and new programme development.

As part of their strategy to maintain knowledge-based economies and to survive under the conditions of globalisation, we expect governments to continue to invest heavily in (university) research. However, we expect a further shift away from base allocations and to competitive research grants. Competition over research funds can be expected to increase both at a national and international level.

Already today, some 30 percent of higher education students are enrolled in private institutions. We expect this percentage to grow, in line with the increasing demand for higher education in most emerging economies. In particular, we expect a growth of the share of private for-profit providers. However, we anticipate this trend to be largely restricted to undergraduate education. We do not expect private for-profit providers to engage in a major way in PhD education, and certainly not in (basic) research.

There will be a very high demand for PhD education, due to the fast rising number of universities globally and the fact that in many developing countries the threshold qualification for academic staff is the PhD.

Some implications for Estonia

The implications for Estonia of the results of this study are of two types: the first relate to Estonian higher education in its entirety, the second refer to the building of 'internationally competitive universities'.

At the level of the higher education system, the biggest threat is the demographic trend and the concomitant challenge of maintaining or even increasing system size. Since Estonia already has a high level of domestic enrolment, this can only be achieved by attracting foreign students into the country, by resolute means of internationalisation. This would include the identification of key markets (countries) and of key subject areas (of national interest), the further development of an international marketing and communication strategy both at institutional and systems level, the increase of the offer of English-taught programmes, as well as scholarship programmes, amongst others.

With a view to investing in 'internationally competitive universities', we would suggest caution, particularly towards seeking to establish a fully-fledged world-class institution, neither as a new creation nor as a merger. We see potential in growing a number of centres of excellence, however, by clustering strong units from the existing research universities with private sector actors and international partners. Such centres of excellence might concentrate on – disciplinary and thematic – national key needs, which are to be identified and would probably build on existing strengths (ICT, for example).

We suggest underpinning these centres by 'initiatives for excellence' schemes for retaining or re-attracting top Estonian researchers, including the further development of modern forms of postgraduate research training.

Section 1

Introduction

This study was produced by Bernd Wächter, of the Academic Cooperation Association (Brussels, Belgium), and Neil Kemp, of Neil Kemp Education Ltd. (UK). It was commissioned to ACA by Arengufond, the Estonian Development Fund, following a call for tenders for a study on 'key success factors of internationally competitive universities' which had been launched on 30 July 30 2009. ACA submitted a proposal, which was finally selected by Arengufond as the winning bid. After a period of talks and negotiations, in which ACA sought further clarification from Arengufond on its exact expectations, a contract between ACA and Arengufond was concluded on 10 November 2009.

The study was produced in a period of slightly over two months, between mid-November 2009 and mid-January 2010, and, after comments received from Arengufond, updated in the period up to the end of February 2010. As agreed with Arengufond, the study is based on a review of the relevant literature (official and 'grey'), as well as on the authors' past work and knowledge of European and global higher education in general, and of higher education internationalisation in particular. The authors also gained important insight into the issues currently at stake in higher education in Estonia, through a focus group meeting of Neil Kemp with representatives of the sector on 22 December 2009.

In line with the call for tenders, the ACA proposal, and subsequent talks and negotiations between Arengufond and ACA, the study was to focus on two related but, as such, separate themes, both relevant for the theme of internationally competitive universities.

First, it was to identify the whole spectrum of characteristic traits of internationally competitive universities and the measures to be taken to build such. In this endeavour, a very wide range of issues coming into play was to be covered, such as funding, governance, management and organisation, staff and students, the relationship to the state, and many more.

Second, it was to explore one particular aspect more in depth, that of internationalisation and its possible role in and contribution to the creation, development and running of internationally competitive universities. In line with the particular expertise of ACA and Neil Kemp in this particular area, the ACA proposal clearly underlined that the authors were to put the main emphasis on this second perspective, but also demonstrate its interrelatedness with the first set of issues.

This study is made up of seven chapters – or 'sections' – as well as an Executive Summary, which precedes it.

Section 1 is the present introduction, which tracks the history of this study, sets out its aims and explains the focus and content of its individual parts.

Section 2 contains a short sketch of the state of development of and the issues currently (and in the future) at stake in Estonian tertiary education. This section is intended mainly as a point of reference for the later chapters which, while exploring and analysing the experiences

gained with internationally competitive universities around the globe and not in Estonia, still must be of relevance to the situation in Estonia.

Section 3, bearing the same title as the study in its entirety ('internationally competitive universities'), is devoted to the first of the two perspectives of the study, as it is outlined above. It is seeking to identify the decisive characteristics of internationally competitive universities, and of strategies of creating them. The section is mainly based on the analysis of the findings of the recent literature on 'world-class universities'. It covers the wide range of topics at play, such as funds, governance, organisation and management, students and faculty, services and incentives, organisation of research training, but also internationalisation. It also touches on the influence of the international ranking exercises (ARWU and THE-QS) on the current concept of excellence. The section already contains, *in nuce*, some institutional and national case examples of building competitive universities and systems, which are later complemented by case studies in section 6.

Section 4 is an introduction into the theme of internationalisation. Amongst other things, it presents a few crucial concepts of internationalisation. It further explains the reasons which drive single universities and other higher education institutions to enter into investments and efforts in this area, and it depicts the motivations which make national governments support those efforts. The chapter also explores the relationship of internationalisation with global competition, and institutional efficiency and effectiveness. After focusing on the group of international students, it finishes with a look on the relationship between internationalisation and globalisation.

The focus of section 5, entitled "delivering internationalisation", is on global student mobility at the undergraduate, Master's and PhD level. It covers a wide range of issues important for the global student mobility 'market' (of over three million now, tendency strongly rising). Themes covered here are strategies of attraction and recruitment and questions of cost and finances, such as pricing (fees) and scholarships, amongst others. Further, the section explores the forces (push and pull factors) that make students study abroad, and influence destination country choice, which is essential knowledge for any country seeking to recruit internationally. It also takes a short look at the present mobility patterns of Estonian tertiary students, after which it turns to the link between student and staff recruitment and the creation of skilled migration. The last aspect dealt with is that of the role of international university partnerships and alliances.

Section 6 contains five studies of cases, where internationally leading institutions have been built in a relatively short time – two or three decades. One of the 'cases' concerns a whole country (though a small one), Singapore. The other cases are the University of Warwick, the University of California at San Diego, the National University of Singapore, and Maastricht University. These examples serve to illustrate the more generic observations made earlier in the study.

In section 7, the final one, we are trying to do two things. First, we take a look into the 'crystal bowl' and try to anticipate the main trends in global higher education in the time ahead of us. Second, we are attempting to identify some implications for Estonian higher education from our findings.

Section 2

The context: Estonian higher education

Estonia is one of Europe's least-densely populated countries, with a total population of 1.3 million. Since 1989, the population size has shrunk by about 17 percent (from 1.57 million), due to emigration (mainly in the 1990s) and low birth rates. Estonia has one of the least promising demographics in the world (estimated crude birth rate 2009: 1.41).[1] Since its independence in 1991, the country has seen impressive economic progress, until being hit by the financial and economic crisis in the autumn of 2008 (though not as bad as some of its neighbours). Notably, the country has in recent years made innovative advances, particularly in the widespread and sophisticated use of information and communication technologies.

Estonia had a relatively small higher education sector at the time it gained its independence, like many post-communist countries. The years since have been characterised by rapid impressive growth. For example, the numbers of students enrolled grew by close to 170 percent between the academic years 1994/95 and 2005/06[2] (but have remained roughly stable since then). In 2003, 64 percent of the five-year age group following on to secondary school-leaving age were enrolled in higher education – a participation rate well above the OECD mean of some 58 percent and not far from the leading countries in the world. This growth has come about in a number of ways, for example by raising intake in state vocational education schools (19-fold between 1995 and 2004) and by the creation of a private higher education sector. Most important, however, was the creation of non-state funded study places, financed out of tuition fees (mostly, but not only, in the public sector).

There are three types of higher education institutions in Estonia: universities (*ülikool*), professional higher education institutions (*rakenduskorgool*) and vocational education schools (*kutseoppeasutus*). In the academic year 2005/06, there were 39 higher education institutions (14 less than in 2001/2002), a number which has in the meantime gone down.

Table 1: higher education institutions in Estonia – numbers and enrolment in 2005/06

Type of institution	Nos public HEI	Nos private HEI	Total enrolment	Enrolment public HEI	Enrolment private HEI
University	6	5	49,334	42,867	6,467
Professional HEI	8	13	14,594	7,142	7,452
Vocational education school	6	1	4,359	n.a.	n.a.
Total	20	19	68,287	50,009	13,919

39 higher education institutions with a total enrolment of about 68,000 might seem a high number for a small country like Estonia – i.e. an average per institution of just 1,750. However, averages are misleading and by far the largest numbers of students – 42,867 – are

[1] All data in this paragraph from CIA World Factbook.
[2] All data quoted in section 2.1 from here onwards are taken from the most recent OECD review of Estonian tertiary education (published in 2007 and conducted in 2006). We are aware that, in many cases, the data are not the latest ones available.

enrolled in the country's six public universities and about 29,000 students alone in the two largest ones, the University of Tartu and Tallinn University of Technology (who together make up some 43 percent of Estonia's higher edcuation enrolment). Despite its growth, the non-university sector is relatively small (28% of total enrolment), and institutions in this sector are small. The same goes for the private institutions (28% of total enrolment).

The above distinction into public and private higher education is not identical with the sources of funding of Estonian higher education. While places for study at private higher education institutions are mostly (but not all) tuition-fee financed, so is a considerable share of places in public institutions. The Estonian state agrees with each institution on the basis of contracts how many places it finances. Institutions may – and do – take in more students, but these have to pay tuition fees. System-wide, 54 percent of all places are privately financed through fees (2006). Higher education institutions are free to set their own fee levels (though increases over 10% per year are banned). Fees for university studies range from 115,000 EEK per year in English-taught medicine at the University of Tartu to less than a fifth of that in humanities, for example. They are lower still in non-university type institutions.

Public investment in higher education has been relatively stable in the past decade, fluctuating around one percent of GDP (0.9% in 2005). Private expenditure was close to 0.5% of GDP in 2005. The public-private total of 1.4% comes close to the OECD average of 1.5. But, due to the above-average participation rate in higher education (see above), Estonia's annual expenditure per student relative to per-capita GDP was, at 24.9, far below the OECD average of 42.6 (2002 data).

Compared to higher education (teaching and learning), research and development (RTD) in Estonia is less well-funded. This is largely a result of a comparative under-investment by the business sector, which accounts for funding of 0.28% of GDP, compared to about 1.5% OECD-wide (2003). Public funding for RTD by the higher education institutions, on the other hand, stands at 0.36% of GDP and thus closer to the OECD average of 0.42%.[3] Research conducted is strongly concentrated in the university sector and, particularly, in the University of Tartu and Tallinn University of Technology, with an estimated share of at least 70 percent of the sector's research output. Public funding of university research is a mixture of baseline funding, longer term grants from the research councils as well as special measures to create 'centres of excellence'. The latter are funds provided by the Estonian government but are originally European in origin ('structural funds'). European research funding flows into Estonia also through the EU Framework Programmes (currently FP7).

Estonia was amongst the original signatories of the 'Bologna Declaration'. It progressed fast with the introduction of the key structural changes agreed, such as the introduction of the two-cycle (later three-cycle) degree architecture. All Bologna monitoring reports document that Estonia is amongst the countries with the highest Bologna compliance.[4]

Likewise, Estonia has made strong efforts, in the years since its independence, to integrate an international dimension into its HE system. The country has launched several nationally-funded mobility support schemes, and it has also been participating (since 1999/2000) in the

[3] The latest figure available for *total* RTD spending in Estonia is 1.14 percent of GDP (www.stat.ee)
[4] Cf for example the Bologna 'Stocktaking Report 2009 (http://www.ond.vlaanderen.be/hogeronderwijs/bologna/conference/documents/Stocktaking_report_2009_FINAL.pdf).

EU Erasmus programme[5], as well as in the mobility-related parts of FP 7, such as the Marie Curie scheme, and the EU Erasmus Mundus programme. However, student mobility inside these funding schemes, but also 'free' international mobility, displays a weakness of Estonia in higher education internationalisation: while Estonian students are enthusiastic to spend part (or all) of their studies abroad, foreign students are less likely to opt for study in Estonia.[6] Even though it has risen in past years, the share of international students is low by international standards, at 3.2 percent in 2006/7.[7] Given that a strong inflow of international students is not only desirable for Estonia, but simply necessary to keep up the country's higher education base in the face of declining enrolment in the years to come, this represents a real challenge. Predictions are that, due to the demographic trend, the enrolment of Estonian nationals could drop by as much (or more than) 50 percent by 2015. Estonia must seek to attract far more international students than it does today.

The Estonian Higher Education Strategy 2006 – 2015 addresses the above issue and many more. Reminding of the facts that Estonian higher education operates in a "worldwide open educational market and resulting competition", stressing the need of knowledge-based societies and economies for economic growth and competitiveness, demanding that a more clearly structured and academically more performing system will be put in place, possibly with fewer institutions and definitely with more labour-market relevant study programmes and better funding, the document also and particularly asks for very considerable efforts in the area of internationalisation. For the year 2014, it sets the following targets for mobility into and out of Estonia:

- An increase in the number of foreign (international) students from about 900 (2005) to 3,000[8], i.e. of well over 200 percent;
- A share of 10 percent of foreign doctoral students and postdoctoral fellows (partly funded by scholarships);
- A share of three percent of permanent foreign teaching staff;
- A share of five percent of Estonian students to receive a scholarship for study abroad;
- The requirement of at least one semester's stay abroad for anyone being awarded a PhD at an Estonian institution
- The creation of more English-taught programmes, particularly in the PhD study segment.

In sum: Estonian higher education has made impressive strides in a matter of just two decades. It has expanded the sector drastically, creating one of the highest study participation rates in the world. It has created a differentiated system of institutions with different missions at different levels. It has introduced in a consistent way the Bologna reforms. It has financed the expansion of the sector partly by the introduction of fees for non-state-financed study places. It has two universities which might not be viewed as belonging to the league of international leaders, but which are known outside the country as solid research universities. Last but not least, it has made a strong effort in the area of internationalisation, particularly in the area of mobility.

[5] Now part of the so-called Lifelong Learning Programme
[6] cf for example Erasmus participation: http://ec.europa.eu/education/programmes/llp/erasmus/stat_en.html.
[7] According to new EUROSTAT data ACA has just received, the total number of international students was 2,200 in the respective year, and thus not so far from the 2014 target of 3,000. .
[8] The TORs for this study quote the target as 2,000 international students, but the version of the document we found mentions 3,000.

But there are also downsides: funding of higher education is not ample (which is largely the result of the growth of the sector, in essence a good thing). Funding of research in particular is not strong. In the area of internationalisation, the undoubted successes in outbound mobility are put into perspective by relatively low numbers of incoming international students. The growth of a college and private sectors, as such desirable, has led to the creation of a relatively large number of quite small institutions, so that one might describe this part of the system as somewhat 'fragmented'.

The biggest challenge for Estonian higher education is, however, still to materialise. The demographic trend bears the potential to drain the sector of students. This will at some stage also affect the number of available young researchers (PhD students and postdoctoral fellows) and ultimately of researchers and it will therefore certainly jeopardise any attempts to raise the performance level of the sector further and be able to create in the future one or more 'internationally competitive universities' – unless the students and researchers can be found elsewhere.

Section 3

Internationally competitive universities

In this chapter, we address the central question as to what constitutes internationally competitive universities and what it might take to build them. What differentiates the focus of this chapter from that of the following two is that here a broader range of issues that fall within the general context of international competitiveness and by association the idea of world class, as applied to universities, are reviewed. The latter chapters seek to consider how these concepts fit within the more widely understood ideas and activities that constitute internationalisation, at both the institutional and national levels. That does not mean that internationalisation will not play a role in the present chapter, as will soon become apparent.

3.1 Introduction

The term "internationally competitive university" is rarely used in the scholarly literature on higher education, let alone defined. However much better known and discussed are the concepts of 'world class university' and 'institutional internationalisation'. It is probably necessary to provide some background to differentiate the terms: internationally competitive, world class and internationalisation as they might be applied to institutions.

Firstly a world-class university might not necessarily be internationally competitive nor need it be internationalised, although most world class universities are able to compete successfully for funding to attract high quality staff and students and deliver high impact research. The prestige associated with their brand helps to ensure this.

Secondly many 'internationally competitive universities' would not fall into the category of world class in the terms normally applied. For example some teaching-led universities have proved to be globally very competitive in their ability to attract international students or deliver their programmes internationally through collaborative degrees e.g. Universities of Northumbria (UK) and Southern Queensland (Australia). The US for-profit universities are also highly competitive and have overseas campuses that recruit large numbers of international students, yet none have ever been described as world class.

Thirdly an institution that is highly internationalised might be neither world class nor internationally competitive. For example some of the elite Baccalaureate universities (private Liberal Arts Colleges) of the US are highly internationalised in terms of their teaching and learning but have very limited research capability and normally only in a few disciplines. The concept and activities of university internationalisation are discussed in detail in Chapter 4.

Given the above considerations this chapter will consider primarily the 'world-class' notion of a university, as it probably has the greatest congruence with 'international competitiveness' – notwithstanding the constraints mentioned above. The concept of world class has, in recent years, moved centre-stage in the debate on (and the research into) higher education. Some authors also speak of "flagship universities" in this context. The considerable drive to build world-class universities, or at least the attention the phenomenon has recently received,

probably owes itself to three developments, two substantive, the other 'technical' and probably a result of the other two.

The Knowledge Economy: The first development, or rather intellectual construct, is that of the knowledge-economy. In simplified terms, the argument runs like this: for a long time in the history of mankind, sheer luck had determined the wealth of nations. The availability of fertile, arable land, in agrarian societies and later access to natural resources (precious metals, coal, oil or gas) played a decisive role. Today, another resource has moved centre-stage: people. People, or rather their discoveries (in research) and inventions (brought about by the translation of research findings into cutting-edge products) will decide over affluence or poverty, it is claimed. The production, the dissemination and the application of new knowledge are now seen as the key driver of modern economies. As Marginson and van der Wende suggest, this has moved universities into centre stage; they are now more important than ever as the means to grow international networks and stimulate new global flows of people, information, knowledge, technologies, products and financial capital[9]. A further implication of these trends and their likely impact on higher education, again as reported by Marginson, concerns the new communication systems that have grown in tandem with that of the global knowledge economy, and the ability of academics and others to use these effectively. As communication systems multiply and diversify, the information and the choices available grow rapidly while, on the other, there is less time available to reflect, choose and communicate.

Globalisation: The second development, or again, construct, is that of "globalisation". In a simplified form, the concept denotes a networked world, in the spheres of the economy, but also communication, for example. A higher degree of interconnectedness accelerates global economic (and other) competition. Advanced economies in rich countries have an advantage and a disadvantage under the conditions of globalisation. They cannot produce cheap, but they can produce higher value-added products than economies in less developed countries. It is therefore essential for them to maintain their knowledge lead. Though higher education institutions often see themselves as objects of globalisation they are also its agents[10]. Constant investment in research and innovation is crucial for it provides the foundation for a country seeking to operate successfully in a globalised operating environment. It supports the generation of new knowledge and the take-up of technologies, promotes greater international cooperation and association and helps stimulate the important new globally networked communities.

Thus effective higher education institutions are an essential and dynamic component for engagement in a globalised world but, even as they share in the reinvention of the world around them they, and the policies that produce and support them, are also being reinvented. But there can be both positive and negative impact on universities as globalisation and greater connectedness might facilitate moves towards more market driven policies that allow for greater exploitation of their intellectual property, yet on the other hand more knowledge is accessible and freely available, everyone can exploit; it is essentially a global public good[11].

[9] Simon Marginson, Marijk van der Wende, *Globalisation and Higher Education*, Education Working Paper No. 8 OECD, Paris 2007.
[10] Peter Scott, "Massification, Internationalization and Globalization" in, *The Globalization of Higher Education*, The Society for Research into Higher Education/Open University Press, Buckingham 1998, pp. 108-129.
[11] Simon Marginson, "Open Source Knowledge and University Rankings", Thesis Eleven, Number 96, February 2009

Marginson[12] also commented on the relationship between globalisation and higher education in the context of Australia:

> *'Globalization is the process of world-wide convergence and partial integration. Economy, knowledge, culture and language are part globalized. Communications ensure that the world can no longer be kept out, even if we tried, like King Canute, to somehow stop the flow. Universities everywhere are now connected up to every other. Research is worldwide, educational trade crosses borders and we share the ideals of intellectual freedom and student security with colleagues everywhere. Globalization is uneven and unequalising between and within countries, and not everything has become suddenly 'global', for local and national dimensions continue. Despite student and staff mobility, higher education and research are locally grounded and vested in national policy and funding, all over the world.'*

Rankings: The third development, and of a technical nature, is the recent emergence of global rankings or "league tables" of universities world-wide. This development is crucial in that, theoretically, it might provide for the first time a quantitative measure (though not at all uncontested) for assessing the relative performance of universities on an international scale. The performance of universities thus becomes comparable and those universities appearing in the top 100 or 200 of these rankings are most frequently referred to as "world-class universities". Among the growing number of global league tables, first and foremost the Academic Ranking of World Universities (ARWU)[13] of the Shanghai Jiao Tong University and the THE-QS World University Rankings[14] of Times Higher Education (UK), have *de facto* set the trend for the provision of sets of quantitative indicators to compare performance internationally. *Faute de mieux*, the criteria of the international league tables, and particularly the above-named ones, have become the measure for identifying the internationally-leading universities, and thus largely replaced the old, and much less precise, prestige-determined 'methodologies', often based on peer review. This is important to underline. The research literature[15] on world-class universities, even though in many ways critical of the methodologies of ARWU and THE-QS, relies on the criteria of these rankings, and their analysis of what constitutes a world-class university is based on those universities who make it to the top ranks of ARWU and THE-QS.

A study for the Swedish National Agency for Higher Education[16] considered a variety of national and international approaches to rankings and commented that most rankings have a common factor in that they present indicators of quality that are weighted to produce an outcome which, in its turn is ranked in comparison with all other such results. This essentially differs from many other forms of quality assessment because it is relative as there are no absolute norms for what may be regarded as being minimum quality.

What might this imply?

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[12] Simon Marginson, The Global Positioning of Australian Higher Education: Where to from here?' *Asia-Pacific Association for International Education*: National University of Singapore (March 2007).
[13] http://www.arwu.org/
[14] http://www.topuniversities.com/university-rankings/world-university-rankings/2009/results
[15] Alex Usher, Massimo Savino, *A World of Difference: A Global Survey of University League Tables*, Educational Policy Institute (2006)
[16] Swedish National Agency for Higher Education, Ranking of universities and higher education institutions for student information purposes?, Stockholm 2009.

- The methodologies of both rankings (though more of ARWU) lean heavily towards quantifiable results in *research*. The quality of *research*, and not of teaching, is therefore the central element of their concept of a world-class university.[17]
- By their choice of indicators of research strength (Nobel Prizes, Fields Medals, publications in Science and Nature, citations) they further tend to favour universities with a focus on the natural sciences and engineering, and disfavour institutions with a strong emphasis on the social sciences and humanities. [18]
- By their choice of sources for publications and citations, they strongly favour universities whose staff publish in the English language (and thus, some critics maintain, universities in Anglo-Saxon countries)
- The methodologies of both rankings do **not** control for the size of universities (in terms of students, researchers, funds, or whatever). They therefore tend to favour large institutions (typically comprehensive in subject range), and put at a disadvantage small (specialized) institutions. Theoretically, if two institutions of medium quality merged into a single one, they would move up the table considerably without any improvement in terms of research outputs.[19]
- The above-mentioned rankings measure the research output of universities. They do not (and they do not aspire to) measure the strength of a country's research system. The latter is often misunderstood. Research takes place outside of universities as well, for example in corporate research centres, and, in many countries, in academies of science (a model, though, apparently on the way out) and in extra-university research organisations (the Max-Planck Institutes in Germany, the CNRS Centres in France, the National Institutes for Health in the US, for example).

A further consideration is the role of the 'owners' of the different systems and publications of rankings: many are commercial entities (e.g. newspapers or other media) which depend on attracting advertising revenues and do not normally have any direct responsibility for the higher education sector.[20]

This section is not intended to be a critique of international league tables. It attempts to report what the literature views as internationally competitive (or "world-class") universities. But since the scholarly literature bases the identification of "world-class" institutions on the methodologies of ARWU and (to a lesser extent) of the THE-QS, the above limitations must be borne in mind when drawing conclusions for the further development of higher education in Estonia (or anywhere else). It is therefore important to point out that the concept of the world-class university is normative and is only one of a number of possible approaches to excellence in higher education and that, ideally, the measures of excellence applied should reflect the mission and aims of the particular institution in question. Practically all authors explicitly or implicitly agree that there should be more than one single approach to excellence, allowing for differentiation. Institutional types held in high regard, such as the liberal arts colleges in the US, which are elitist, highly selective in student intake and very costly (some with annual tuition fees of more than US$50,000), require non-research-related standards to be measured against. Even more so do institutions like the US community

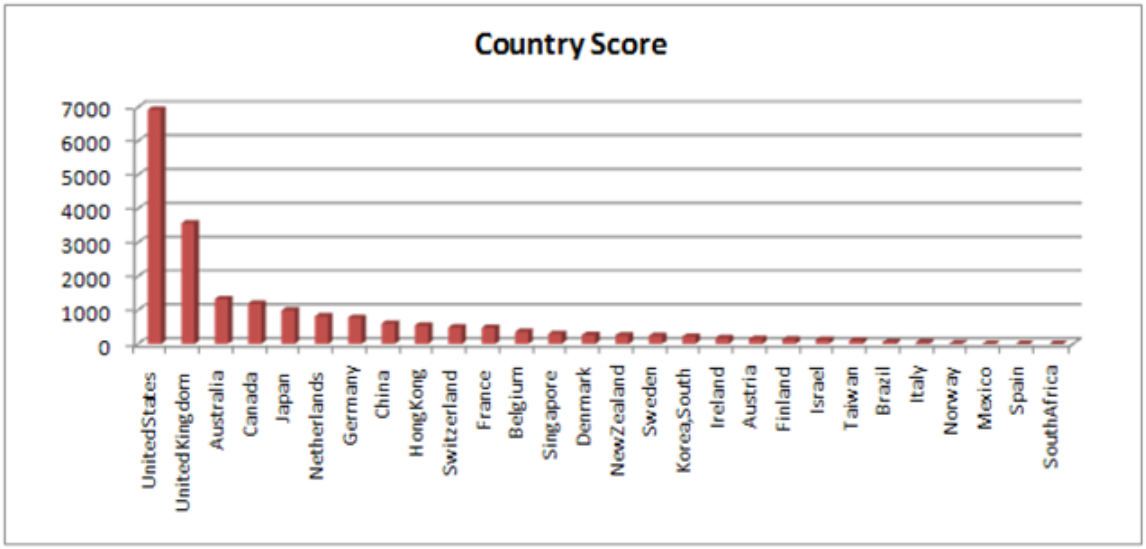
[17] The OECD is currently testing, in the form of a pilot project, a methodology for the assessment of "higher education learning outcomes" (AHELO), also sometimes referred to as the "PISA for higher education". Even though the OECD is careful not to use the term ranking in connection with AHELO, it could de facto become just this.
[18] It must be stressed that those operating the said rankings are very aware of these limitations and are, at present, making efforts to better accommodate the so far "underrepresented" discipline areas.
[19] Size, though, is an advantage only up to a certain critical limit. As Salmi points out (and others second), institutions of a few hundred thousand students become ungovernable and lose the selectiveness necessary for fostering excellence.
[20] This does not apply to ARWU, though.

colleges, which award 2-year (sub-Bachelor) degrees, but are widely seen as an essential building block of the total US higher education system.

To insist on a plurality of approaches to excellence is not only important to do justice to these non-research-focused institutions. It even has a bearing on the "world-class universities" in ARWU and THE-QS. The literature is agreed that one condition to build world-class universities is, by and large, the existence of a rich and varied national system of different types of higher education institutions, with horizontal diversity (by type and mission) and vertical stratification as the decisive traits. In other words, it has not been possible, with very rare exceptions, to build world-class institutions without a solid "undergrowth" of less ambitious or anyway different institutions. Likewise, some authors point out that the creation of a world-class institution at the (financial) expense of the higher education system as a whole would most likely be unsustainable. This would not only jeopardise the functioning of these "lesser" institutions, by draining them of resources, it would also, in the long run, take away the foundation upon which the world-class university rests.

With very few exceptions, world-class universities (by the measure of being included in the top 200 in ARWU and THE-QS) are located in "rich" countries of the world, typically in member states of the OECD or anyway countries with a high GDP. This leads to a concentration of such institutions in the US and a number of European countries, and the virtual absence of universities from Africa and Latin America. The number of Asian institutions is slowly rising, but proportionally still low (with exceptions such as Japan, Australia, Korea and, with some institutions, mainland China). This is well illustrated by the analysis of Beerkens[21], who 'scored' in reverse rank order the countries in which the 'top 200' in the THE-QS 2007 rankings are located; in this the dominance of UK and US is very clear (see Figure 1).

Figure 1: Country total 'scores' according to the number of their HE institutions listed in THE-QS Rankings (2007)



Source: Beerkens Blog' Edition 9 November 2007

Other attempts at ranking according to country GDP or size of population have also been presented, as has more detailed analysis according to subject area[22]. All these concerns

[21] 'Beerkens Blog' Edition 9 November 2007
[22] See: http://www.timeshighereducation.co.uk/hybrid.asp?typeCode=419

have been debated extensively and a number of new approaches have been proposed including a European Commission initiative to develop a multi-dimensional ranking system for EU institutions. The European Universities Association EUA has made a call for more detailed appraisal of the various methodologies[23] and this will shortly be going ahead.

In a review of rankings Marginson[24] suggested that rankings do more than just define a university's profile and quality. The criteria used to determine a university's position in the ranking system become meta-outputs that most universities then put priority on. Thus rankings begin to define what quality means and thereby influence university strategies and balance of activities. Thus for ARWU rankings, higher education is rated in terms of science research and Nobel Prizes awarded whereas the world according to THE-QS rankings define higher education performance as primarily concerned with building reputation as an end in itself. Marginson concluded in another study of rankings with van der Wende[25]

> *"We are early in the history of international and global rankings. Systems are yet to become firmly established. The development of internationally agreed-on principles for good practice is crucial."*

The warnings of Marginson and van der Wende about 'meta-outputs' are echoed by Kehm[26], who very recently warned against a danger of an 'mimetic isomorphism' to take higher education systems into their grip.

> *"…the race for prestige and position (facilitated by the rankings, B.W./N.K.) can easily lead to mimetic isomorphism – that is, the imitation of "the best" by all others. Thus, instead of focusing on a given institution's individual strength, such a development will eventually lead to less profile and identity with questionable usefulness for the system as a whole."*

From all perspectives of rankings, the concentration of world-class universities in countries with a high GDP already indicates that it is extremely costly to operate them and this will be addressed below. This has led to questions as to which universities could – and indeed should – strive to become one, and how many countries, and which, need one or a number of them and can afford them. There are no easy answers to this, but there are clearly limits for poor or for very small countries. It is clear that a country the size of Luxembourg or Iceland (with populations under half a million) will not be able to come up with the means. Nor is it conceivable that even larger low income countries will be able to afford one. Such countries can, however, hope to achieve international excellence in selected fields, by creating world-class faculties or institutes. The dangers of unrealistic ambitions are highlighted in the following quote from Justin Lin, a Senior Vice President and Chief Economist at the World Bank.

> *"World-class standards may be a reasonable goal for some institutions in many countries, but they are likely not relevant, cost-effective or efficient for many others."* [27]

An inevitability of league tables is that there will always be a few winners but many losers. However there is growing evidence that while global rankings might be stimulating

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[23] 'EUA President Promises Rankings Review'; University World News, Issue 110 (February 2010)
[24] 'Global university rankings: where to from here?'; Simon Marginson; Asia-Pacific Association for International Education: National University of Singapore (March 2007)
[25] Simon Marginson, Marijk van der Wende, "To Rank or To Be Ranked: The Impact of Global Rankings in Higher Education'; *Journal of Studies in International Education*, Vol. 11 Fall/Winter 2007;
[26] Barbara Kehm, "Germany: the Quest for Wolrd-class Universities", International Higher Education, no. 57, fall 2009.
[27] Foreword to: Jamil Salmi, *The Challenge of Establishing World-class Universities*, Washington: World Bank, 2009.

international competition in higher education sector, they might also drive changes to national systems and in ways that might be inappropriate. It is worth recording that there are about 30,000 universities in the world, thus those institutions that fall within the 'top 500' will justifiably see themselves as 'world class' for they are within the top two percent.

Philip Altbach, one of the leading authorities on (and critics of the concept of) world-class universities, has highlighted the problem explaining that the concept is fuzzy, and there is no agreed definition. In an often-quoted observation, Altbach[28] states about the world-class university that *"everybody wants one, no one knows what it is, and no one knows how to get one".*

3.2 Key success factors: characteristics of world-class universities

What are the characteristics of world-class universities, what are their key success factors? How do they differ from their "lesser" sister institutions? Which are the necessary conditions for a higher education institution to become world-class? This section will try to sum up the state of insight of the recent literature.

There is a high degree of agreement between researchers and university leaders, about the key characteristics of world-class universities. This is not always apparent at a first glance, since authors refer to identical phenomena with different terminology, and they also categorise them in different ways. The most frequent terms employed in association with world-class institutions are: 'Quality'; 'Autonomy; 'Reputation'. However distilling the various comments from across the literature a collection of attributes might be summarised to include:

- Research quality, with a significant emphasis on 'blue sky' research and strong international partnerships and cooperation;
- Ability to recruit the best staff no matter where they are from and to ensure that their top researchers work with the best in their field in whichever country they are based;
- Abilities across all disciplines: social sciences and humanities as much as STEM[29] and medical sciences;
- Strong leadership: with a clear and shared vision for the institution;
- Autonomy: particularly to define institutional aims and mission, define direction, with independence from government including to set salaries and attract globally leading faculty;
- Teaching quality and ability to attract quality students, including graduates, both domestically and internationally;
- Mixed funding – no over-dependence on one source

In order to simplify the discussion in this study, we will employ Jamil Salmi's approach to provide a basic structure, but we will incorporate, wherever appropriate, observations from many other authors. Salmi[30] categorises the different characteristics and key success factors of world-class universities under three broad categories, namely

- Concentration of talent,

[28] Altbach, P. and Balan, J. (eds.), *World Class Worldwide: Transforming Research Universities in Asia and Latin America*. Baltimore, MD: Johns Hopkins University Press 2007.
[29] STEM: science, technology, engineering and mathematics
[30] Jamil Salmi, *The Challenge of Establishing World-Class Universities*, Washington: World Bank 2009

- Abundant resources, and
- Appropriate governance.

Internationalisation: concentration of talent

The *concentration of talent* concerns the human resource base of a university, i.e. its faculty and its students. In both cases, a world-class university is able to attract the very best, i.e. it can afford to be and *de facto* is highly selective. Since talent is equally distributed around the globe, the characteristic of a concentration of talent automatically translates into a highly international composition of both the faculty and the student body. In any event, a university favouring its own graduates for faculty positions, or practicising 'endogamy' (favouratism) in any other form, is never going to become a top-performing institution. In fact, the literature is agreed that a "concentration of talent" translates into, or is identical with, 'internationalisation'. In the introduction to their recently published book, Jan Sadlak and Liu Nian Cai (the chief architect of the ARWU) come to the conclusion that "*foreign students and other emanations of internationalisation have become a surrogate for competitiveness*". [31] By "surrogate", they mean in this context "equivalent" or "measure". The two authors see an ever-growing competition for talent, which is being 'lured' by a multiplicity of benefits, such as scholarships and fellowships, tax breaks, ample project funding and allowances of all sorts.

On the side of the *students*, this implies that the university is free to choose its students and that admission is organised in a highly competitive way, making it possible to pick the academically most outstanding students from the domestic and international pool. In any event, free admission (with a secondary school leaving certificate as the only criterion) is incompatible with world-class status, particularly in the graduate (Masters and PhD student) segment. A recent article by Bertrand Bellon on the reform of French higher education illustrates this point impressively.[32] Amongst the many 'rigidities' of the French system he names the ban on student selection in state universities. The universities must admit every student applicant with a *baccalauréat* (or foreign equivalent), with the result of an extremely heavy teaching load in the first and second year of studies, after which a large share of students are "tested out". This results in heavy drop-out and is highly resource-inefficient. By contrast, the elitist French *gandes école* are allowed to practice very competitive selection at the entrance to study, resulting in some cases in one out of 1,000 student applicants being admitted (to full studies, more are admitted to the *classes préparatoires*). Together with the fact that French universities may also not charge (any substantial) tuition fees, there is thus no 'level playing field' in French higher education, and universities find it almost impossible to compete with the *grandes écoles*. The problem of free admission is by no means limited to France. It causes a big challenge in Spain too, as Martinez, Mora and Mora[33] demonstrate in a recent article on Spanish higher education. The problem exists also in Germany, for example. A university's freedom to select its own students is thus one of the pre-conditions of

[31] Jan Sadlak, Liu Nian Cai (eds.), *The World-class University as Part of a New Higher Education Paradigm*, Bucharest: CEPES 2009, p. 14.
[32] *Bertrand Bellon, "The Restructuring of the French National System of Research vis-à-vis the World-class Universities", in: Jan Sadlak, Liu Nian Kai, The World-class University as Part of a New Higher Education Paradigm* (see above)
[33] Jan-Miguel Martinez, Francisco-José Mora and José-Gines Mora, "Strategies for Developing a World-class University in a Complex Context: the Case of the Valencia University of Technology", in: Jan Sadlak, Liu Nian Cai, *The World-class University as Part of a New Higher Education Paradigm* (see above)

a world-class university. In this respect, Aghion et al.[34] indicate that a good way to create transparency of the comparative quality of applicants are comparable standardised tests, as practiced in the US, such as the Scholastic Aptitude Test (SAP) or the GRE (Graduate Record Examination). As stated earlier, the competition for the best talent may, and practically always does, involve incentives, such as scholarships (for the best or for needy students who were admitted "needs blind"), and adequate or even high-quality housing, student services and sports facilities, amongst others.[35]

On the side of *faculty and researchers*, it is viewed as essential that universities are free to hire – and, importantly, to fire. It is also seen as essential that universities can freely set remuneration levels (which, in globally leading research universities, are very high), and not be encumbered by bureaucratic restrictions in this regard, such as rigid pay levels. For this reason, most authors agree that systems where professors have a civil servant status, and therefore pay bands are prescribed, are not generally a good solution. Such systems, it is felt, do not reward outstanding achievements, and thus undermine ambition of top performers in the long run. The above-mentioned article of Martinez, Mora and Mora on the University of Valencia makes this very clear indeed. It must, however, be borne in mind that some higher education systems, for example in Switzerland, have been able to maintain world-class status despite a civil servant model (and the model has so far in China not stood in the way of major progress). This shows, as will later be elaborated on, that it is not one single factor, but a combination of factors, which ultimately produces internationally-leading universities.

It is clear that selectivity in choosing faculty produces increased cost. High achievers are the target of heavy competition between the leading research universities, with a galloping inflation in salary bills as a result.[36] Universities in non-English-speaking countries will also not be able to attract top researchers if they do not provide an English-language teaching and research environment. Likewise, top students can hardly be attracted for study in a rarely spoken language (other than their own). As a result, top universities around the world are increasingly becoming institutions functioning in the English language. A good example is the Dutch system of higher education and the University of Groningen in particular. After having transformed almost all its postgraduate and a good deal of its undergraduate teaching offer into English, the university took the next step to 'anglicise' its administration, and especially its governing bodies. It felt that it could otherwise not retain its top foreign professors, who had a right to be involved in the management and governance of the institution, too, next to exercising their professional (teaching and research) functions in English.

In both cases (students and faculty alike), the literature is agreed that selectivity based on merit must reign, instead of a democratic 'one-size-fits-all' approach, or, even worse, an endogamic culture favouring students or faculty from the same region, country or institution. It is clear that the anti-endogamic and thoroughly meritocratic approach of world-class universities automatically leads to a very high share of foreign nationals, among the student population as well as the faculty. One of the first steps to be taken to overcome provincialism is the adoption of a robust policy of advertising **all** major academic positions internationally.

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[34] Philippe Aghion et al., *Higher aspirations. An agenda for reforming European universities*, Brueghel Blueprint volume V, Brussels 2008.

[35] Maria Kelo, *Support for international students in higher education. Practice and Principles*, Bonn: Lemmens 2008 (ACA Papers on International Cooperation in Education).

[36] Jamil Salmi (2009), p. 25, with the example of the University of Wisconsin at Madison, which finds it increasingly difficult to keep top talent. p. 25

As Owen et al[37] state, a university which wishes to attract top international researchers (in this case: highly cited ones) must

> "*ensure that academic recruitment processes are truly global and truly competitive. Parochial and paternalistic advertising, appointment and promotion structures need to be addressed to ensure that institutions are able to attract the very best staff."*

Funding: abundance of resources

Abundant resources (i.e. financial means) are Salmi's second characteristic of world-class universities. Like all other authors, he stresses the enormous cost to run world-class research universities, and thus the need for very considerable resources. Income sources can be categorised into four categories, viz.

- government budget funding (for operational expenditure and research),
- contract research from public and private bodies,
- endowments, and
- tuition fees.

Quoting US universities as the main source of evidence, Salmi argues that private not-for-profit higher education institutions appear to be better off than public ones. However, he concedes that even in the US and in the case of not-for-profit private universities, *public spending* (mainly through competitive research contracts from government-funded bodies) translates into a sizeable share of overall means. Altbach, basing his observations on the wider global picture (and, particularly, on emerging economy countries), sees the typical research university much more as a public institution:

> *"Research universities, with few exceptions, are government-funded public institutions. Only in a few countries such as Chile, Japan and the United States do private research universities exist, …"* [38]

Altbach, admittedly a critic of private higher education, thinks it possible that the share of private universities[39] with a leading research function might increase in the future, although the process will be slow and private world-class universities will hardly become a mass phenomenon. This is also a consequence of the recent two decades of growth of private providers around the world, which have primarily been for-profit teaching only institutions, and almost entirely funded through student fees. As Altbach further points out, the very high cost of research, and particularly of basic research, which is not producing returns on investment in the short and medium term, is a limiting factor for the role of private for-profit universities in the top research segment.

There is some variety of opinion about the right mix of regular state contributions and income from competitive research grants (awarded by public or private sources). Aghion et al. found

[37] Nicola Owen et al, *Elite Scientiest and the Global Brain Drain*, The Warwick Economic Paper Series (TWERPS), 825, 2007.
[38] Altbach, Philip G; (2007), p. 8.
[39] The terms 'private' and 'public' with regard to universities are anyway ambiguous when is comes to funding. The terms also must be differentiated from those of 'for-profit' and 'not-for-profit'. There is, to our knowledge, no single 'for-profit' research intensive private university. For-profit private institutions mainly operate in a select number of applied fields, such as business and management studies, and are not research-intensive. Most private research universities (outside the US) are 'private' only in terms of ownership (such as the many Catholic universities), but derive the bulk of their funding from the state.

that universities whose share of income derived from competitive grants (state or public) was substantial were more likely to reach world-class status, but all concede that considerable direct funding from the public purse is unavoidable for a university to play in the top league. It must also be borne in mind that, while competitive grants usually produce better results than baseline state allocations, the way this offer is structured, transparent and accessible (or not) also plays a role. An example of a rich but intransparent and scattered offer was, until recently, that of the French research councils. As Bellon impressively described, this system was so complex and atomised, with so many actors and agencies, that it produced only a limited effect. [40]

A strong strategic advantage of US universities are – in some cases – their very considerable *endowments* (generating, at the top, an annual income per student of about US$40,000). Endowments are seen by almost all authors as a blessing, since they make universities less dependant on the whims of changing government priorities and thus allow for the pursuit of self-set long-term strategic aims. But the endowments of the top US universities have been accumulated over a considerable period of time, and to simply want them does not make one have them already. Table 1 that details the endowments of leading US universities and provides a clear indication of the sums available for investment by them – and why they might all be in the 'Top 200'.

Table 1: 'Top 20' US College and universities according to size of their endowments (2008)

Institution	Market value (June 2008)
Harvard University	$36,556,284,000
Yale University	$22,869,700,000
Stanford University	$17,200,000,000
Princeton University	$16,349,329,000
University of Texas	$16,111,184,000
Massachusetts Institute of Technology	$10,068,800,000
University of Michigan	$7,571,904,000
Northwestern University	$7,243,948,000
Columbia University	$7,146,806,000
Texas A&M University and Foundations	$6,659,352,000
University of Chicago	$6,632,311,000
University of Pennsylvania	$6,233,281,000
University of Notre Dame	$6,225,688,000
University of California	$6,217,340,000
Duke University	$6,123,743,000
Emory University	$5,472,528,000
Cornell University	$5,385,482,000
Washington University in St. Louis	$5,350,470,000
Rice University	$4,610,164,000
University of Virginia	$4,572,613,000

***Source: US** College Board (2009)*

[40] Bertrand Bellon, "The Restructuring of the French National System of Research vis-à-vis the World-class Universities", in: Jan Sadlak, Liu Nian Kai, *The World-class University as Part of a New Higher Education Paradigm* (see above)

Outside the US, endowments are rare (United Kingdom universities have accumulated some, though very much more modest). Aghion et al as well as Scroop et al[41] quote the recent example of the creation of endowments in Australia, where a "Higher Education Endowment Fund" has been set up (though this is a national-level, and not a university-based instrument, translating more or less into increased state appropriations). In order to enable universities to build up endowments, Aghion et al. strongly support the idea to facilitate donations, by means of tax incentives.

Research output and impact: World-class universities or such aspiring to become one would typically set targets and define corresponding indicators in the area of research, such as a quantified increase in publications by faculty members in internationally renowned peer reviewed journals, an inclusion of citations of work by faculty members in standard indices, or, indeed, a certain minimal rank in ARWU or THE-QS. What is also apparent in the case of these institutions is the extremely high levels of international cooperation and partnerships which they sustain – globally cutting edge research is international. The most frequently used means of measuring research impact is through international journal citations. Studies of research partnerships[42] for US and UK university research publications clearly demonstrated that the impact of UK-US co-authored papers was significantly greater than for those originating from the US or UK research teams working independently. Roberts employed an analysis of citations per paper in internationally refereed journals over a ten-year period, to assess impact. Investment to grow international research partnerships and cooperation is thus vital for any university aspiring to become world class.

A further result of international research cooperation is the impact on greatly enhanced staff and student mobility. These are also seen as important drivers for improving the international profile and effectiveness of an institution.

Tuition fees, the fourth income pillar in the above classification, are a characteristic of most world-class universities, though not of all. They are a standard feature of US universities and are increasingly becoming the norm elsewhere in the world. In order not to jeopardize the aim of attracting the best-qualified students, they are usually counterbalanced by a system of loans and scholarships for the very best or for the needy. There are a few countries with world-class universities which do not charge tuition fees. Among them are the Nordic countries of Europe. In these countries, government support for universities is high enough to compensate for the lack of income from tuition fees. But it is a question for how much longer the Nordic countries will be able to afford their no-tuition policies and in some Nordic countries, tuition fees for certain types of students have already been or are now being introduced. For example, Denmark introduced fees for non-EU/EEA students at a considerable level a few years ago.

Resources have, in this section, been approached from the perspective of income sources. But their ultimate rationale is of course to provide faculty and staff with the best conditions possible for research, teaching and learning. These conditions concern remuneration levels (in the case of staff), but also working and learning conditions and the working and learning environment. Cutting-edge laboratories, infrastructure and equipment here play a leading

[41] Tim Scroop et al., "The Pursuit of 'Scale and Focus' at the University of Adelaide", in: Jan Sadlak and Liu Nian Cai (eds.), *The World-class University as Part of a New Higher Education Paradigm (see above).*

[42] 'International comparative performance of the UK research base'; (September 2009) Evidence Ltd., for Department for Business, Innovation, and Skills and 'International Partnerships of Research Excellence: UK–USA Academic Cooperation; Gareth Roberts (2006), Wolfson College, Oxford. (www.wolfson.ox.ac.uk/UK-US-Academic- Collaboration)

role, particularly in the “hard sciences”, as well as state of the art libraries and advanced IT environments. For students, as was mentioned before, high-quality dormitories and sports facilities are a standard requirement.

Running a university: appropriate governance

How are world-class universities governed, and who governs them? This question concerns the issue of the relative degree of autonomy that institutions need to come out at the top of the international league tables. A number of detailed studies have been undertaken concerning the various governance models associated with a university[43]. Meek and Davies considered the implications of ‘New Public Management’ in the context of differing national systems of governance of higher education institutions. They suggested that a number of different conceptual models might be described that they term ‘collegial’, ‘bureaucratic’, ‘political’, ‘organised anarchy’, and ‘professional’, respectively. Additionally more recent literature adds to this list the ‘entrepreneurial university’, the ‘service university’, the ‘enterprise university’, and the ‘corporate / managerial university’.

Meek and Davies suggest that the definitions of higher education governance and management will depend on the level of analysis involved: national, local, institutional, sub-unit or discipline levels. Ultimately they suggest that the governance structure should be defined according to where universities are located within a triangular field defined by:

- academic oligarchy.
- state authority
- and the market.

They suggest that the ability of universities to exercise initiative within system-wide authority structures might be measured on a continuum that has, at one end, a 'bottom-up' system where state policy follows rather than leads changes initiated by academics or institutions (high autonomy), and at the other end a 'top-down' system in which institutions respond to government policy initiatives enforced by the state (low autonomy). They propose that

> *“….. the utility of higher education governance and management models will be judged in terms of how well they allow the higher education institutions to contribute to further the Knowledge Society and Knowledge Economy,"*

Building on the above considerations there is considerable general unanimity in the research literature that world-class institutions need a high degree of “autonomy”. Classically, a distinction is made between an “external” and an “internal” dimension of autonomy.

The *external dimension* relates to the relationship between the government and the university and to the relative degree of freedom from outside intervention (from government) that a university enjoys. The consensus is that world-class universities enjoy maximum freedom in this regard, apart from a few essentials, obviously, such as being subject to the law of the land. Minimum conditions of autonomy, today almost always fulfilled in developed economies/democracies, are that universities must[44]:

[43] V. Lynn Meek, Dianne Davies, “Policy Dynamics in Higher Education and Research: Concepts and Observations”, UNESCO Forum on Higher Education 2009.
[44] The latter lists of bullet points are a combination of conditions mentioned by Jamil Salmi and Philippe Aghion et al.

- have a legal personality of their own,
- be able to conclude contracts,
- be able to own assets.

It should also be seen as self-evident that a condition for becoming a world-class university (or indeed any university of an acceptable standard of performance) is "*academic freedom*". Altbach[45] makes a distinction between two versions of academic freedom: a more limited one, which he also refers as the "German" understanding and which guarantees the pursuit of teaching and research without any limitations of a political, ideological or religious sort, and a more far-reaching concept of academic freedom, which protects the freedom of academics to speak up on any matter of public interest. In order for a university to become world-class, it is necessary that academic freedom exists at least in its more limited variant.

But world-class universities enjoy higher degrees of autonomy than those basic conditions. They can, amongst other things:

- use their resources as they think fit
- set their own development plan
- determine the emphasis of their research work
- decide on their programmes and curricula
- select their students (in competitive ways)
- freely set their tuition fees
- select and hire (but also fire) their staff and faculty
- decide freely on the latters' remuneration

The *internal dimension of autonomy* refers to how a university manages itself. There is by now a strong consensus that world-class universities need a very *strong leadership*. In this respect, the position of the President of a typical US American university, or of an Australian or UK Vice-Chancellor, is seen as far superior to a Rector or President with limited powers who is, essentially, a *primus inter pares*. Some universities have even found it advisable to "import" from abroad a famous academic leader, to strengthen the standing of the President and to import innovative leadership models and new ideas, though radical departures from national practice also entail the danger of a clash of academic cultures.[46]

Next to leadership, a world-class university needs to agree on its mission and to develop a *shared vision of its future development*, and as Temple[47] has indicated universities that succeed best are those with a realisable strategic vision that is managed as a totality to achieve the vision. A main means towards delivering the vision practically is to translate it into a *development plan*. This plan will set quantitative (and other) performance targets along a time axis, making it possible to evaluate progress over time. There has been considerable research (for example see Conlon[48]) concerning the implications for setting performance indicators the concern being that they are frequently developed in response to government

[45] Philip G. Altbach, "Empires of Knowledge and Development", in: Philip G. Altbach, Jorge Balan (eds.), *World-class Worldwide*, Baltimore: Johns Hopkins Univeristy Press 2007, p. 11.
[46] KAIST, one of the leading Korean universities, hired a Nobel-awarded US President, whose introduction of US style management proved highly controversial with the faculty and created considerable friction. Cf. Ki-Seok Kim & Sunghee Nam, "The making of a world-class university at the periphery", in: Philip Altbach & Jorge Balan, *World-class Worldwide*, Baltimore: Johns Hopkins University Press 2007.
[47] Paul Temple, "Branding in Higher Education: Illusion or Reality?", *Perspectives*, vol. 10, (2006).
[48] Michael Conlon, "Performance Indicators: Accountable to Whom?", *Higher Education Management and Policy*, vol. 16, no 1, 2004 (OECD).

rather than internally generated, often in relation to policies that focus on the commercialisation of the public sector – frequently described as 'market responsiveness'. Additionally this can also result in greater centralisation of decision-making within an institution, thereby undermining the concepts of autonomy and shared vision.

As will become clear later, the development of a vision, mission and an implementation plan and constant monitoring of progress is a necessary condition for an institution to become world class, but it is not sufficient. As a host of examples make clear, among them that of the University of Adelaide in Australia, for a university to succeed its members, the academic staff, must buy into the venture. This is where leadership comes in: the leaders need the ability to convince and persuade, and to make staff take 'ownership'. [49] To make the faculty buy in to a commonly agreed strategy, to convince them to engage for the whole university, to accept that it is not always the own faculty which will take the lion's share if its results do not merit this, appears a difficult task everywhere, as this quote from an address of newly elected Harvard President Faust from 2007 underlines:

> *"…we need to find new ways of working together, of engaging the creativity of one of the most talented communities in the world. We need to break down barriers that inhibit collaboration among schools or among disciplines…, barriers that lead us to identify ourselves as from one or the other "side of the river." Collaboration means….investing beyond one's own particular interest or bailiwick. It means learning to live and to think within the context of the whole university."*[50]

According to Aghion, there should be limits to autonomy in self-governance. He insists that autonomy should not be identical with total self-governance. He strongly advocates a system whereby self-governance of faculty (for example in the form of an Academic Senate) be complemented by *university boards* the seats of which are at least partly filled with external representatives, from the spheres of the economy and society. Indeed, such boards are becoming increasingly common around the world. Their introduction was, in part, a reaction to forms of excessive grass-roots self-governance of universities, particularly in mainland Europe (but also in Latin America), which turned out to be neither effective nor efficient and distracted academics' attention from their main tasks of teaching and researching.

The remaining factors quoted in the literature as impacting on internal autonomy are more of a "soft" sort, though by no means less important. Salmi mentions a *culture of excellence and competitiveness*. This refers to a competitive attitude towards fellow researchers inside the university, but of course also elsewhere. As with a *culture of constant self-questioning and openness to change*, this quality is hard to measure in terms of quantitative indicators, but it is easy to see what an institution devoid of it looks like: one which is complacent, satisfied with what it has achieved, repeating itself, immune to innovation, and devoid of effort. This is clearly the description of a university on its way out of relevance. In addition to the above, Altbach makes the point that *corrupt practices* are absolutely incompatible with world-class universities – since they undermine the deeply meritocratic nature of such institutions. Thus, no institution that tolerates such practices as favouritism in appointments, bribery in student admissions, plagiarism and the selling of degrees can hope to rise to the ranks of the best. One is tempted to believe that such dangers pose themselves only to universities in the

[49] Tim Scroop et al. (see above)
[50] http://news.harvard.edu/gazette/story/2007/02/harvard-presidential-announcement-remarks-by-president-elect-drew-g-faust/

developing world, but regular press reports about cases of abuse in US and European institutions prove that vigilance is needed everywhere.

An additional important point is made by Owen, who stresses that restrictions on the permitted parameters of research exert a negative influence, for example on an institution's ability to attract the best researchers, as the following quote explains:

> *"Restrictions reflecting ethical, religious or political ideology may deter or simply prevent the best researchers from reaching a university, whatever the other attractions on offer. When the United States of America clamped down on stem-cell research, for example, a number of leading stem-cell researchers left for overseas."* [51]

Interplay of success factors

The three key conditions for leading research universities elaborated on above – high-quality human resources, generous funding, appropriate governance mechanisms – all impact individually on the performance of universities. More important, however, Salmi as well as Aghion et al come to the conclusion that they are mutually reinforcing, i.e. that each one produces the maximum effect only if the other conditions are also fulfilled. Thus, for example, pumping large amounts of money into universities crippled by inappropriate governance structures produces no results. Being highly selective in student intake but lacking a culture of competitiveness is no good either. As Aghion et al. succinctly put it:

> *"But our main result is not simply that more money or more autonomy is good for research performance. It is that more money has much more impact when it is combined with budget autonomy. To be precise: we find that having budget autonomy doubles the effect of additional money on university research performance."*

Other factors

Multiversities

World-class universities are "*multiversities*", to use a term coined by Clark Kerr[52], the legendary late president of the University of California, Berkeley. They are institutions with a multitude of missions and, although their claim to fame derives (almost only) from their research performance, they are teaching institutions, too, comprising also Bachelor education. They are also, in the vast majority of cases, "comprehensive" institutions, covering a wide range of academic disciplines (although there are exceptions, such as California Tech, which is small and non-comprehensive and consistently scores very high in the international rankings).

While clearly putting the emphasis on research, world-class universities are almost invariably also *institutions educating students*, from the Bachelor level upwards. That much is undisputed. What is less clear is if that contributes to their research prowess and if they are

[51] Nicola Owen (see above)
[52] Clark Kerr, *The Uses of the University*, Cambridge: Harvard University Press 2001.

particularly good at teaching. Most authors would agree that world-class universities are excellent at training young researchers, if only because they enjoy the privilege of working under the inspiring guidance of the best researchers world-wide. It is less clear if top-notch research also translates into top-quality teaching of undergraduates. Those who claim that this is the case usually refer to the excellent results and the exemplary careers of the graduates of the universities in question. Those who are less convinced point out that study success and career progress are, in these cases, largely the result of a high selectivity in admissions. They more or less claim that this selection process guarantees success, regardless of the education received (or, in the worst case, not received). We remain agnostic on this issue.

World-class universities are "multiversities" also in a second sense. They are very rarely subject-specific specialist institutions. Rather, they tend to be *comprehensive universities*, covering a wide range of academic fields. Those authors who see this as a reason of their research success claim that the existence of a broad range of disciplines opens up opportunities for cross-disciplinary and inter-disciplinary cutting-edge work. Again, it is unclear how much of such cross-disciplinary work actually happens (within one and the same university) and whether or not it is a root cause of their world class status (we have evidence that this is the case in some universities, such as the University of Adelaide, which we will describe later, but not generally). We would like to point out that multi-disciplinary universities are usually larger than specialized institutions and that the established ranking systems do, as we explained earlier, favour larger institutions over smaller ones (by not controlling for size). In other words, it cannot be excluded that size rather than a wide disciplinary mix explains their success.

Graduate education

A number of authors stress the importance of up-to-date forms of *graduate education* for world-class universities. First of all, most researchers point out that world-class universities have a much higher share of graduate (doctoral and Master-level) students than less performing universities. Second, however, it appears that it is not only numbers, but the exact form of education and the conditions of study which make the difference. Aghion et al. (2008) attach a particular importance to the creation of graduate schools, with an at least semi-independent institutional foundation, which would provide structured research (and applied) training and replace the old model of PhD education as an (often neglected) "apprentice" of a professorial faculty member by a more independent approach. An example of another form of emphasis on graduate education is provided by Kim and Nam[53] in their article on the creation of world-class institutions in Korea, as well as by Gilsun[54]. A substantial part of the funds from Korea's BK 21 Programme was devoted to graduate students (mostly in their doctoral study phase), for scholarships, research assistantships and also for temporary study abroad. The Korean BK 21 Programme is described in more detail further on in this study.

Entrepreneurialism

[53] Ki-Seok Kim, Sunghee Nam, "The Making of a World-class University at the Periphery: Seoul National University", in: Philip G. Altbach, Jorge Balan, *World-class Wolrdwide*, Baltimore: Johns Hopkins University Press, pp. 122-139.
[54] Song Gilsun, "Korean Initiatives Promoting World-class Universities and the Performance of the Seoul National University", in: Jan Sadlak, Liu Nian Cai, *The World-class University as Part of a New Higher Education Paradigm*, Bucharest: UNESCO 2009, pp. 325-338.

Some authors comment on the issue of the *entrepreneurial orientation* of world-class universities and of the question of their links with the corporate world and on issues of commercialism more generally. Those who do come to amazingly similar conclusions. While stressing that no leading university will ever ignore the needs of the societies and economies around them, in order not to lose in relevance, they warn against a direct involvement of universities in markets. Both Altbach and Aghion et al. point out that little scope for interaction with the corporate world exists in the case of basic research. Altbach, who anyway sees the university essentially as a "public good" institution and is therefore naturally cautious on too close university-business links, is critical of agreements between universities and private companies to produce specific research products or to open up the university's labs to corporations. He sees such developments as a threat to the classical academic values, which undermine the autonomy of the university and shift its research focus in undesirable directions. Aghion et al. take a more nuanced stance. For them, too, a direct engagement of universities in the market is undesirable. But they insist that universities must secure the intellectual property rights (IPRs) deriving from their research and must financially benefit from their exploitation. Likewise, they can envisage an indirect form of market presence of universities, in the form of spin-off companies, in their own ownership or in joint ownership with corporations.

3.3 Creating world-class universities

How are world-class universities being created? The existing literature devotes considerable space to this question. In classifying approaches, Salmi's categorization again has the advantage of simplicity and clarity, so that we will use his structure to present the present state of thinking of all the relevant authors. He identifies three basic paths to transformation. They are 'ideal types' (in the Weberian sense), meaning that in reality all sorts of combinations exist. These basic approaches are:

- Upgrading (improvement) of existing institutions
- Merging of existing institutions
- Creation of new institutions

Before embarking on an elaboration of these three approaches, we would like to stress again that the creation of an internationally leading higher education institution by any of these three approaches is not a trivial matter and, notoriously, will be very costly. The few world-class universities of the world, such as for example Harvard, have evolved over the centuries, and relatively little government intervention (of whatever sort). To hope to create a world-class university today, in a matter of two or so decades, is not possible without state involvement, be it only for the very high cost. Altbach (2004) assessed the cost of creating a world-leading institution at a minimum of 500 million USD (for the initial setting up costs only, not the running costs). Salmi estimates the costs considerably beyond that, quoting the example of the establishment of Cornell's Medical School in Qatar which cost 750 million USD (and is obviously, not a full multi-faculty university).

Upgrading

The upgrading of existing universities is probably the most common approach to attaining excellence globally (and it might well be the obvious one for small or for poor nations). This approach presupposes, of course, that there is already a stock of decent quality institutions, on which it is possible to build.

The Chinese example

Upgrading invariably involves selection, or positive discrimination. It is not a egalitarian exercise. It presupposes preferential treatment for a number of institutions, which will inevitably lead to complaints from those not selected. China has practiced this approach now since 1984, when it started its "National Key Project", with demonstrable success. Its two major upgrading initiatives since the 1990s, the so-called "211 Project" and the "985 Project", put an end to the egalitarian way of treating the country's universities, in terms of funding as well as in other respects. This is important to note: before the start of these initiatives, Chinese universities were funded on a per-capita basis of enrolled students (with different weightings for undergraduate and graduate students).

The 211 Project, started in the mid-1990s, funded about 100 universities with the aim of improving their research performance in a major way. The 985 Project, which was launched in 1999, provided in its initial phase (1999-2001) extra funding worth 3.4 billion USD, from both the central and regional government, to 38 research universities. The aim of both initiatives was to improve research capability. The financial support of the 985 project to the top nine institutions amounted to considerably more than the regular government support they received – a very sizeable investment. However, these initiatives not only provided a cash injection, they also introduced (in part) differentiated academic policies. They allowed raised salaries for top scientists, but they also introduced improvements in research training: by 2007, 53 universities were approved the status of 'official' graduate schools (out of some 400 providing graduate education in China), a quality label for the training of young researchers. Not only did this label enhance the reputation of the universities in question, it also went hand-in-glove with more flexibility (autonomy) in the establishment of new postgraduate curricula. Likewise, the top universities under the initiatives were given preferential status in enrolling the best-achieving high-school graduates from China's provinces, leading to an enormous influx of talent.[55]

The 211 and the 985 Project were complemented by a whole range of instruments to retain Chinese talent in the country, and to re-attract Chinese top researchers at universities abroad. China had, for some time, suffered an exodus of talent. Of the roughly 800,000 Chinese students who studied outside of the country between 1978 and 2004, only about a quarter had returned to China after graduation. Ma (2007) reports that in the 1990s, Peking University (one of the leading ones in the country) was referred to as a "preparatory school" for study abroad, since over one third of its Bachelor graduates left the country for Master and PhD study in the US and Europe. To this danger of brain drain, China reacted with the Changjiang Scholar Award Plan (1998) and the Chunhui Plan. The Changjiang Professors, Chinese who had received their higher education abroad, receive an annual bonus of 12,500

[55] For a more detailed account of the Chinese approach, compare Nian Cai Liu, "Research universities in China. Differentiation, classification and future world-class status", in: Philip Altbach. & Jorge Balan, *World-class Worldwide*, Baltimore: Johns Hopkins University Press, 2007.

USD, as well as further benefits and research allowances. The programme targets the best Chinese scholars worldwide in science and engineering. The Chunhui Plan provides grants for short-term visits of foreign-based Chinese scholars for research at Chinese universities. This is an attempt to keep the scholarly disaspora in touch with the motherland – in the hope that they will return one day. In parallel, attempts are being made to attract foreign students, to organise international exchange of students and faculty, to create strategic institutional partnerships both in education (joint degree programmes) and research.

Liu[56] assesses the Chinese policy of upgrading the country's top universities as a success. While pointing to many remaining challenges, he states that China's top universities

- Had more than doubled the number of articles indexed in the Science Citation Index (SCI) in the short period between 2000 and 2005 (with Tsinghua University having reached the level of the top 50 universities in the world);
- Had reached a proportion of 50 percent of faculty members with a PhD in 2007, a share expected to go up to 75 percent in the course of 2010;
- Are successfully increasing the proportion of foreign-educated top researchers, i.e. are turning an earlier brain drain into a brain gain;
- Have reached a share of 50 percent of graduate students (of total enrolment).

As to be expected, the Chinese preference for the upgrading approach does not exclude elements from other policies. Thus, China has also been active merging institutions, many of which had been built on the Soviet model of specialized universities. Since 1992, some 200 specialised institutions have been integrated into comprehensive multi-disciplinary universities.

The Chinese experiment provides hope for those who seek to create top-class universities by upgrading a select number of institutions, i.e. by "positive discrimination". At the same time, the Chinese example can serve to illustrate that such an approach is only promising in the context of an overall system with a decent minimum level of quality. Thus, China is not neglecting its overall higher education system: overall spending on higher education has stood at 3.3 percent of GDP for a decade. This is a percentage which few OECD countries reach.

Upgrading worldwide

The Chinese upgrading approach is impressive in its dimensions, especially for an emerging economy, but it is by no means the only national initiative intent on upgrading a select number of higher education institutions or centres. At least twenty countries around the globe have embarked on similar ventures. Particularly often quoted are the German 'Excellence Initiative', the Japanese '21st Century Centers of Excellence' (COE21) and its successor, the 'Global COE' programme (see Yonezawa[57]), or the Korean 'BK21' project. Obviously different in important detail, they all focus on the development of research capacity (including, importantly, research training, mostly in graduate schools) and they all work, to a larger or smaller extent, on the basis of "positive discrimination". The principle is to identify the best institutions and centres in the country, which are viewed as having substantially more

[56] See above footnote.
[57] Akiyoshi Yonezawa, "The New Direction of Japanese Higher Education Policy", Jan Sadlak, Liu Nian Cai (eds.), *The World-class University as Part of a New Higher Education Paradigm* (see above).

potential than the average, and to reward them by very sizeable extra funding (and often privileges). Some, like the Korean approach, carry the idea of rewarding successful institutions even further. As a result of an ongoing evaluation, the most successful institutions which received BK21 funding will receive more in the next round and those less successful will have less. All the schemes are publicly (government) financed. Not all – not even most - of them support universities in their entirety. While most of the initiatives are based on the upgrading approach, some, for example those in Denmark and France, rely on merging institutions or, at any rate, creating research-focused structural partnerships.

Merging

Probably independently of the present preoccupation with world-class status, mergers have become a frequent phenomenon in higher education around the world. This tendency has multiple causes, not all of which are linked to a quest for world-class status. In some countries, a development towards concentration has taken place over a period of a decade or more, such as in Denmark or in Flanders (Belgium). The origins of such concentration have often been the existence of a large number of small (mostly college-type) institutions, some with a few hundred students only, which were hardly sustainable and anyway costly to run. In these cases, the aim of the concentration exercise, which took place in steps and over a lengthy period, was mainly to achieve economies of scale. Another wave of mergers originated from the existence of a large number of specialized (mono-disciplinary) institutions, for example in countries of the former "Soviet block". In a further set of cases, mergers were the result of a re-integration of academies of science into universities (also often in former Warsaw Pact member states). Only the latter type of merger is in some way related to the drive to produce top-performing research-oriented universities.

The advantages of mergers, as claimed by their adherents, are (1) increased size, or "critical mass", (2) synergies and cross-fertilisation between different research and teaching units and (3) a better position in the national and international league tables. We have already made clear what we think of the latter: since the international rankings do not control for size, even a merged institution with the same results as the sum of the formerly separate ones is bound to climb in the table – an entirely technical effect. We do not contest that mergers open up possibilities of an increase in cross-disciplinary research and cooperation, but there is little evidence of how often this potentiality actually becomes a reality. We also recognize that mergers have the potential to create economies of scale, and thus open cost-saving opportunities (particularly in the administration), but the economies of scale do not materialize automatically.

On the other hand, mergers bear multiple risks. One such risk is that the creation of a new collective identity of the faculty and staff of the former institutions will not succeed, and conflicting institutional self-concepts and academic cultures will continue to exist. A second risk is that the promise of economies of scale might remain unfulfilled, because there will be too much resistance against the abolition of duplication of staff and academic programmes and research units, turning cost-saving prospects into heavy and unnecessary spending. Further, there is the risk that institutions merged out of lofty ambitions will give in to the temptation of hiring superstar professors they cannot really afford. Not all of this needs to happen, but some of it usually does. Scale is not a virtue as such, as we have pointed out,

and above a certain size (of a few hundred thousand students), it certainly turns into its opposite.

The University of Manchester

In this respect, the example of the University of Manchester is instructive. On 1 October 2004, the University of Manchester was born, out of a merger of the Victoria University of Manchester and the University of Manchester Institute of Science and Technology. One of the aims behind the merger was to make it into one of the world's top 25 universities by 2015. The university has made visible progress in a short time, and it might ultimately reach this aim. But, as Alan Gilbert, the Vice-Chancellor of the new university, now the largest in the United Kingdom in terms of enrolment and income, explained in a refreshingly frank presentation to the audience of an OECD workshop in 2008, so far not all has gone as originally planned.[58] The university has not yet fully reached the desired economies of scale, and a number of double structures continue to exist, particularly in human resources, which creates considerable cost. The institution has made heavy investments in hiring outstanding researchers and providing them with world-class facilities, which is likewise costly (the university intends to have made six "iconic appointments" of Nobel Laureate status by 2015). Increased size has increased the complexity of governance and management considerably and systemic problems of planning, direction, control and quality assurance have become greater. Gilbert finishes his presentation by highlighting a considerable number of advantages of size, but he also concludes that "scale alone is probably not a sufficient justification for institutional mergers in higher education, for a merger is a precarious option". And he draws attention to the fact that this is not only the case in higher education: 75 percent of all corporate mergers fail.

Creating new universities

Despite its risks, the merger option - and also the upgrading approach - have the advantage of reduced cost, over the option of creating an altogether new institution. This might explain why the best-known recent examples of institutions created from scratch come from countries with (until recently) rich oil revenues, such as the King Abdullah University of Science and Technology (KAUST) in Saudi-Arabia or the International University of Astana, in Kazakhstan's new capital.

Paris School of Economics

An interesting example comes from France, the recently created Paris School of Economics (PSE). The PSE is a hybrid of a from-scratch creation and a consortium of existing academic institutions. It was set up, as a private foundation, by the Sorbonne (Université de Paris 1), four Paris-based *grandes écoles* and the national research council (CNRS). The school has funding not only from the consortium members and the French state as well as the region, but also from private companies. The PSE has fast made it up in the international rankings – though of course only in its own disciplinary areas. For it is not a comprehensive multi-disciplinary university, as most of the classical "world-class universities" are, but a specialized institution. Not only in this does it differ from the classical model. It is also entirely a postgraduate institution (starting with the Masters level). And it teaches exclusively in English,

[58] http://www.oecd.org/dataoecd/52/18/41058966.pdf

which is a radical departure from the (proud) French francophone tradition. Unlike the other French universities (though not the *grandes écoles*), it will be highly selective in intake.

Indian Institutes of Technology

The Indian Institutes of Technology are seen by many as a successful example of a new creation in the midst of an – at best mediocre – system of higher education at the time of their launch. The first of the today seven schools of this type was already established in 1951, the last one only in 2001. It is thus difficult to talk of a fast-track development. The IITs are semi-comprehensive universities, active in the areas of engineering and technical sciences, management and applied sciences. They provide the whole spectrum of academic degrees, from the Bachelor to the PhD level. Compared to India's universities, the IITs enjoy a very high degree freedom in academic affairs as well as in governance and administration. Access to the IITs is strictly on meritocratic grounds and highly competitive. The roundabout 4,000 new entrants every year have been selected out of an applicant pool of a quarter of a million. Their ability to attract the best students translates into a like labour market success of its graduates. But there are also reports of recent problems. They are not of the IITs' making, but they could become a danger for them. One recent problem was created by the success of the Indian economy, as a result of which private employers could pay much higher salaries than the ITTs, which find it increasingly difficult to fill their positions. Another challenge is that the highly competitive admissions system could come under threat, in the form of quotas for students with a special social (or cast) background. These threats are not peculiar to the from-scratch approach, but they show that to create a university free from old restrictions is one thing, but to defend this status is another.

The cost notwithstanding, creating a world-class university from scratch offers some advantages. It is easier to introduce a new academic culture from the start than to change an existing one, especially if the faculty is recruited from abroad or anyway not from institutions with a culture that the new creation is intended to leave behind. It is politically easier to grant academic freedoms and space of manoeuvre in management and governance in entirely new institutions. It is easier to introduce new admission logics and to put in place different reward systems.

Further aspects

The three different approaches sketched above – to upgrade existing institutions, to merge existing institutions, or to set up new universities – all have advantages and disadvantages, as the above discussion should have made clear. Some, such as the model of starting new universities, might be out of the reach for smaller or very poor countries. What is essential, however, is that any of the three approaches can only be successful if the key conditions (success factors) of world class universities are fulfilled: internationalisation and talent; rich resources, and benign governance and management structures. These factors do ultimately decide over success or failure.

'Articulation' of world-class universities with the higher education system

There is a further factor, mentioned in the literature usually only *en passant*. It is the question of the "articulation" of world-class universities with the wider (higher) education system, or the

"fit" between the two. We have already mentioned earlier that there are very few cases where it has been possible to establish a world-class institution without the basis of a sufficiently broad and institutionally diversified overall higher education system. Or, to say it with the words of Altbach (2007), "*the creation of a differentiated academic system is a prerequisite for research universities…A differentiated system has academic institutions with diverse missions, structures and patterns of funding*". The public higher education system of the US State of California can serve to illustrate this point (California has, of course, a large number of – very good – private institutions, too). Already in the early 20th century, California designed an architecture of public higher education institutions to organise an array of multidimensional and multi-purpose postsecondary institutions, the so-called "California model". The system is essentially structured in three layers of institutions: the first layer consists of fairly open-access vocationally oriented community colleges (an essential element of the entire US system by now, first introduced in this US state). The middle tier is made up of multi-purpose state universities, and the top layer consists of high-quality research-driven universities. All three have different missions and are funded in different ways. Today, California has close to 500 tertiary institutions, only a small fraction of which are research universities. But among the 20 top-placed universities in ARWU in 2009, an astounding six were from California.

The massage is clear: top-class universities mostly are the pinnacle of a system of other higher education institutions, most of which are not research-focused. This is also the conclusion to be drawn from the example of Korea (cf. Ki-Seok, Kim & Nam, Sunghee, 2007). Korea started its attempt to create world-class universities in the late 1990s. Interestingly, it did so at a time when the country was going through an economic crisis (the Asian currency crisis), showing that higher education investment need not necessarily follow economic cycles, but can be used as a counter-steering measure. But, more important, Korea started this move when its secondary education system had become one of the best in the world (as demonstrated by PISA) and when enrolment in higher education (including at the sub-Bachelor level) had gone beyond 80 percent of the appropriate age group. On this, the country's "excellence initiative" BK 21" was built. It has not yet brought the country to Californian heights, nor could that humanly be expected, but the country's flagship university, Seoul National University, has consistently been among the 200 top-ranked institutions since the start of ARWU, and KAIST, the Korea Advanced Institute of Science and Technology founded in 1971, has made it into the leading 300 in ARWU, and even into the top 100 of THE-QS in 2009.[59]

Clustering and networking

The literature is full of references that top researchers by international standards (for example measured by citations) tend to concentrate in the same universities. In other words, a few institutions have a high concentration of outstanding performers, and others have none. It is unlikely that a university can keep one single world-class researcher; this researcher would miss the necessary environment of other out-performers, and there would also not be enough critical mass to build a powerful research group. This is the dilemma of the vast majority of universities in the world: like globally leading football clubs, they lose their stars to the top

[59] KAIST is an instructive example in other respects, too. The vast majority of professors are US-educated. The second-but-last President, Robert Laughlin, was a Nobel Prize Laureate from Stanford University. KAIST has a policy of attracting foreign and foreign-educated talent, providing the best ones with grants and scholarships and keeps a strong network of alliances with US, European and Asian universities.

clubs. Which options do they have? One answer to this question appears to be 'clustering' or 'networks'. Reviewing the literature, we have found three types of 'clustering' at different level.

- *International level*: in section 5.7, we have drawn attention to the phenomenon of continental and often global university alliances. These networks are being formed to pool resources of various kinds, amongst them research resources. This way, institutions which lack the critical research mass in a particular field can together attain it. In most cases, it will not be the university-wide alliances which bring about international research teams, but more disciplinary-focused alliances, working on particular joint projects, which might change over time.
- *National level*: we have already drawn attention to an example from France, where a number of higher education institutions (and funding agencies) have set up the Paris School of Economics. But the French reform agenda is not limited to building this one joint institution. As Bellon[60] shows, there are multiple activities on the way. In 2007, France established seven *poles de recherche et d'enseignement* (clusters for research and higher education), which bring together the resources and potential of universities, *grandes écoles* and research centres on a regional basis (with the option of full mergers some time in the future). Likewise, such alliances are being built on a thematic basis (*reseaux thématiques de recherche avancée*) and in particular industrial fields where France is traditionally strong, such as aerospace or transportation (*poles de competitivité).*
- *Institutional level*: clusters are also being created inside one single institution, on a cross-disciplinary basis. The University of Adelaide is again an instructive example. Not only has it singled out particular fields of research concentration and funding, in which it will attempt to achieve a critical mass, but it also links some of them together in University Research Clusters. Aimed at bringing together the university's research strengths, these clusters are inclusive, thematic, cross-disciplinary groupings, whose joint weight is so much bigger than that of the single research team or researcher. An account can be found in the excellent article by Scroop et al. [61]

Clustering (at the international level) is also one of the strategies which Owen et al.[62] propose for institutions which lack the means to pay whole teams of world-class researchers. She recommends supporting such strategic alliances with instruments such as visiting fellowships and scholarships and with the joint training and supervision of PhDs. This is indeed what the University of Adelaide also intends to do, with priority partnerships with Chinese and German universities. Owen regards this strategy as much more promising than two others she discusses, which are to 'grow your own' world-class researchers (and hope, against all odds, that they will not emigrate) and 'attract the best', which is beyond the financial means of 95 percent of higher education institutions world-wide.

Positive discrimination

We have already touched on the principle of positive discrimination before, in the context of the Chinese or Korean 'excellence initiatives', but the underlying approach has potential

[60] Bertrand Bellon, "The Restructuring of the French National System of Research vis-à-vis the World-class Universities" (see above)
[61] Tim Scroop et al., "The Pursuit of 'Scale and Focus' at the University of Adelaide" (see above).
[62] Nicola Owen et al., "Elite Scientists and Global Academic Competition" (see above)

beyond such individual schemes. The principle is, in all cases, to select themes and disciplines of strategic (national, institutional) interest, and, second, to provide very considerable extra funds to those existing researchers, research teams or whole institutions which are best in the identified areas (it might also entail building new teams and centres, where necessary). In other words, excellence is being rewarded and mediocrity (or worse) punished, leading to a concentration of funds. In the Korean BK21 scheme, two single universities, Seoul National University and KAIST, together received over two thirds of the extra funds (in the first round of BK21).

In some systems, this principle is being applied in a radical way. The Koreans regularly evaluate the success of their elite BK21 projects, and they would increase in the following round the share of funding going to the top performers and decrease the proportion of funding flowing to projects of more modest results. At least partly in this direction goes the logic of the various 'research assessment exercises' now being developed increasingly around the globe. Roughly modelled on the UK approach, this regular assessment acts as a redistribution mechanism, which shifts funds in the direction of strong performers. To apply such mechanisms at a national level is exactly the advice that Tony Sheil[63], of Griffith University in Australia, provides to small nations (for him, they include his own country or the Netherlands, for example). At an institutional level, the University of Adelaide, which we have already referred to before, does exactly the same. It continuously measures the performance of its various 'priority areas' receiving additional funding by means of a sophisticated system of indicators, and it additionally rewards outperforming areas and sanctions less successful ones. In parallel with this, Adelaide also rewards 'leverage'. Priority area funding is explicitly tied to the idea of being able to attract funds form outside of the institution, for example from the country's research councils. Success in this endeavour is being rewarded and the lack of it penalised.

Internationalisation

'Internationalisation' is being dealt with separately in this study, in the next chapters. We have made it clear in the introduction that we regard the issues of 'internationally competitive universities' and of 'internationalisation of higher education' as distinct themes, even though they are interrelated in many ways. We would, however, want to stress how often the literature on world-class universities mentions internationalisation measures as part and parcel of strategies to build world-class universities. This does not only concern measures to attract the very best students and researchers, it concerns the higher education systems and institutions as a whole. We were surprised to note which importance authors attach to international institutional linkages and strategic alliances, to a broad offer of teaching programmes in English (not only in Europe, but particularly and increasingly in Asia), to marketing and recruitment measures (not only directed at top talent, but also targeting the wider student and staff body), exchange and cooperation arrangements, and mobility scholarships of all sorts.

[63] Tony Sheil, "Implications of World University Rankings for the National and Institutional Research Strategies of Small Developed Nations", in: Jan Sadlak, Liu Nian Cai (eds.), *The World-class university as Part of a New Higher Education Paradigm* (see above).

Section 4

Understanding internationalisation

4.1 Introduction

This section explores the concept of international competitiveness for a higher education institution through considering the important and close relationship with internationalisation, both at the institutional and country levels. It also assesses how the impact of increasing globablisation might relate to internationalisation of education. These considerations are particularly significant, as any higher education institution that seeks to be globally competitive must prioritise internationalisation.

The pace of internationalisation of higher education around the world has continued to accelerate over the last decade or so as increasing numbers of countries seeking to become globally competitive to grow their knowledge economies, to attract internationally mobile professionals (including the best students and academic staff), to cooperate with leading research groups, wherever they might be located, and to secure the economic, educational and reputational benefits associated with education delivered internationally.

The starting point is to establish a shared understanding of 'internationalisation' in the context of higher education. As Jane Knight has commented[64], any definition must take into account the need to apply to many different countries, cultures, and education systems. It is therefore important that the definition does not specify the rationales, benefits, outcomes, actors, activities, or stakeholders of internationalization as these elements will vary across nations and from institution to institution. The critical point is that the international dimension relates to all aspects of education and the role that it plays in society. With this in mind Jane Knight proposed the following working definition:

> *"Internationalisation at the national, sector, and institutional levels is defined as the process of integrating an international, intercultural, or global dimension into the purpose, functions or delivery of postsecondary education"'*

A further consideration is terminological: 'international education' frequently occurs in the literature associated with 'internationalisation'; similarly institutions and governments refer to an 'international strategy' as compared to an 'internationalisation strategy'. However these are not the same as international education and international strategies generally refer to the recruitment of international students, including to programmes that they might deliver trans-nationally. Whereas 'internationalisation' is more holistic and more accurately reflected through the definition provided by Jane Knight. However such definitions are still not universal. For example, many US universities refer to all approaches to education internationalisation as 'international education'.

It is also helpful to understand better all the activities that might be associated with internationalisation; to facilitate further understanding these can be divided into those activities that a higher education institution might deliver at its home campus and those it is involved with abroad. Table 4.1 below suggests a mix of internationalisation activities. This is

[64] Knight, J., "Updating the Definition of Internationalization", *International Higher Education*, 33, Fall 2003

an extension of the approach suggested by John Fielden in the CIHE publication referenced[65].

Table 4.1: Summary of key internationalisation activities for higher education institutions delivered at home and abroad.

Internationalisation at home	Internationalisation abroad
▫ Attracting international students – both for full programmes and short exchanges; ▫ Internationalising curricular and teaching materials; ▫ Providing foreign language programmes; ▫ Providing internationally attractive programmes (eg including Masters programmes in English medium) ▫ Providing specific country and regional programmes; ▫ Recruitment and exchanges of international academic and research staff; ▫ Growing joint teaching programmes – including for split[66]/joint degrees or other accreditation arrangements; ▫ Growing international cooperation in research; ▫ Encouraging international activities on campus; ▫ Hosting international events and conferences; ▫ Promoting international work opportunities for students – including not-for-profit; ▫ Internationalisation of institutional governance and management	▫ Encouraging domestic students to study internationally; ▫ Supporting work experience placements internationally; ▫ Growing international research links; ▫ Encouraging staff to work internationally: both for teaching and research ▫ Consultancy for international projects; ▫ TNE - delivery of courses and programmes internationally: ▪ Partnership arrangements; ▪ Accreditation of partnership programmes; ▪ Joint/split degree offerings ▫ Establishment of offshore campuses; ▫ Specialist research centres abroad; ▫ International development agenda - capacity building or technical assistance projects; ▫ International volunteering and not for profit activities. ▫ Marketing and promotion of the institution

4.2 Understanding and assessing internationalisation

A number of different attempts have been made to enhance understanding and also provide a measure for the extent of internationalisation across institutions. The US-led organisation supporting the international mobility of students, NAFSA[67], has developed a very useful tool through suggesting and assessing according to various theoretical criteria. These currently focus on the sets of criteria for campus internationalization as explored and represented suggested by three sets of authors:

- NAFSA criteria
- American Council on Education criteria
- Jane Knight & Hans de Wit criteria

[65] John Fielden, *Global Horizons for UK Universities*, CIHE 2007.

[66] A split degree is a degree where a foreign research student is registered for their doctorate in one country (e.g. the UK) but spends significant time for research back in their home country/institution. There might be joint supervision and the UK supervisor might visit the student at his 'home' institution. The research student might return to the university where they are registered to write up and submit their thesis.

[67] http://www.nafsa.org/knowledgecommunity/default.aspx
and
http://www.nafsa.org/knowledge_community_network.sec/itc_matrix_intro/itcmatrix_groups/itc_criteria/#knight

NAFSA criteria

Internationalising the campus was defined broadly by NAFSA as encompassing a number of dimensions: international linkages through connections with foreign universities; study abroad by US students; teaching and working abroad; study by international students and scholars in the US; faculty exchanges; curricula and co-curricular activities; international visitors; foreign language training; corporate-university partnerships; campus-community interaction; and international development projects.

The criteria also address the need to assess an institution's total commitment to international education in terms of its mission and approach to planning – for example does the institution's leadership actively affirm and support internationalisation, including through meaningful financial support?

American Council on Education (ACE) criteria

ACE updated its 2003 criteria[68] for internationalisation following further research into strategies in US research universities[69]. As an outcome of this it has created an 'internationalisation index' defined according to six key dimensions that might cover all aspects of internationalisation, these dimensions are:

- An articulated commitment.
- Appropriate academic offerings.
- Organisational infrastructure.
- External funding.
- Institutional investment in faculty and other staff.
- International students and student programmes.

The ACE approach stressed the need for an enabling environment across the institution to deliver internationalisation and that this should include the role of organisational structures, policies, and practices to promote on campus. Curriculum and co-curriculum development are identified as major components as are the institution's engagement with institutions in other countries for the purposes of research, instruction, learning, and development cooperation. The criteria address and suggest rankings for how well these partnerships are functioning.

ACE surveyed the US Highly Active Research Universities to learn of their internationalisation priorities; this identified the high importance placed by all on ensuring high quality study abroad experiences for their students. A further major priority was the need to encourage staff development through periods of time working in other countries. The primacy that all US universities place on student exchanges and study abroad was also found in a recent separate survey on US university internationalisation strategies[70].

In summary ACE identified the following common institutional strategies that were shared across the group of US Highly Active Research Universities that were surveyed:

a. Articulating their commitment through mission statements, strategic plans, international education offices, and campus-wide international education committees.

[68] American Council on Education, *Internationalizing the Campus: A User's Guide*, Washington 2003
[69] Madeleine F. Green, *Measuring Internationalization at Research Universities*; Washington: ACA 2005.
[70] Neil Kemp and Christine Humfrey, *UK-US Higher Education Partnerships* (in publication)

b. Seeking and receiving external funding for international education.
c. Communicate with faculty and students about international education opportunities using the university web site, e-mail system, and newsletters;
d. Providing opportunities for US and international students to interact with one another outside the classroom.
e. Establishing guidelines for international work to be considered in faculty promotion and tenure decisions.
f. Supporting faculty development in international education that is clearly linked to internationalised courses and student learning.

Knight and de Wit criteria

These researchers have published extensively on all aspects of institutional internationalisation. They suggest that strategies for higher education institutions might fall into two broad categories: programme strategies and organisational strategies and that these can variously be described in terms of the following approaches.

Programme strategies refer to those academic or curricular activities and services that are initiated in order to establish an international dimension at an institution. Strategies in this category include programmes to enhance student, staff, or faculty-oriented academic programmes; curriculum development; collaboration on research or scholarly projects; external relations (domestic and cross-border); and/or extracurricular activities.

Organisational strategies, which are focused more on infrastructure and tend in the main to be hidden from the public include the integration of international dimensions into the teaching, service, and research elements of an institution. These strategies include integrating internationalisation into the governance structure of the institution, support from senior managers; providing operations that ease the implementation of international activities; incorporating human resource elements through recruitment and ongoing professional development; and provision of support services including academic and student life areas.

Other considerations

There are many different mixes of priorities that countries adopt both in terms of formal policies and the actual delivery of internationalisation by institutions. The previous section outlined both the importance of and the approaches to measurement of the effectiveness of delivery of internationalisation. As was apparent from this the activities vary considerably according to the operating context, the countries involved and the nature of the institutions. The following provides a selection of examples as to the factors that might impact upon the delivery of internaitonalisation.

Mission of institution

Research-led universities tend to prioritise the growth of research cooperation, particularly within and between Europe and North America. Whereas institutions that might be more teaching-focused, often place greater emphasis on student exchanges, student recruitment and the delivery of programmes internationally.

Countries

- Australia, New Zealand, Singapore and UK have in particular focused on international student recruitment. Many UK universities have also prioritised the importance of international research partnerships, particularly with EU countries and USA[71] (discussed in Section 5 below).

[71] Neil Kemp and Christine Humfrey *(see above)*

- US institutions prioritise support for the international mobility of their students through study abroad and exchanges and also introducing a wider international dimension into the curricula.
- Danish institutions report[72] that their main priority is to enhance the quality of education for Danish students to ensure that they might successfully compete internationally in future employment. To achieve this they focus on internationalisation of campuses, more programmes delivered in English and the mobility of Danish students.
- South Korean universities now face significant decreases in domestic student enrolments (due to the changing demographics in the country) and thus now wish to grow international recruitment to compensate.
- Vietnam needs to grow its higher education infrastructure to meet a fast growing and generally unsatisfied demand of Vietnamese school leavers. To achieve this Vietnam seeks to attract foreign higher education providers to set up campuses and programmes to absorb some of the excess student demand. The governments of India and Nigeria, amongst others are developing similar policies and for the same reason.
- Malaysia has for several years encouraged foreign providers to offer their programmes in the country (including to establish local campuses[73]) both to encourage more international student enrolments and to promote quality improvements in the Malaysian system; the latter as a result of increased local competition that the foreign presence might induce.

Subject areas

- The international nature of science and technology tends to result in any institutions that prioritise these disciplines in a greater emphasis on the growth of international partnerships, staff recruitment (e.g. including research staff and students and post-doctoral fellows) and the mobility of research students and staff;
- The most popular group of disciplines with international students, in almost every country are business, management, finance and economics. Any institution seeking to compete successfully for international student recruitment must normally need to be able to offer a good set of programmes in these areas.

An interesting summary concerning the impact of internationalisation on a univeristy, together with a practical check-list has been produced by Eric Thomas. He identified[74] the following as the important characteristics that might define an internationalised university:

- Comprehensive excellence in all areas of activity, not only teaching and research but also facilities, administration and leadership
- A vision that promotes and encompasses the international dimension
- A multi-ethnic, multi-national and multi-cultural student and staff community
- Curricula which prepare graduates to work anywhere in the world, including competence in languages
- Significant income from international sources

[72] Neil Kemp, Tim Rogers, *Towards a Danish International Higher Education Strategy*; Copenhagen: CIRIUS 2006.
[73] http://www.nottingham.edu.my/Pages/default.aspx
[74] Eric Thomas, *Entrepreneurship Education and Internationalisation*; Paper presented at the Annual Conference of America's Association of Collegiate Business Schools and Programs (Chicago, 2006)

- Research that contributes to the resolution of global problems
- Interactions with major global businesses
- Advising major global agencies such as the UN and the WHO
- Numerous collaborative international linkages, whether for research or for student and staff exchange.

He also suggested a simple measure of an institution's success on the route towards internationalisation:

> *"Perhaps the best diagnostic check is whether your university regularly receives international visitors both to interact with your staff and to learn from the way you do your business. If international players want to learn from you, you are an internationalised organisation"'*

Elkins et al.[75] have proposed a useful practical model for assessing the success or otherwise of institutional internationalisation. To reach their eleven-dimension model they reviewed the various activities that might comprise internationalisation and trialled the approach with a number of universities. The model was found to provide a useful means in particular to plan investments into an institution, as it was able to indicate more clearly where the institution might be falling short in terms of achieving its internationalisation goals. They demonstrated how this knowledge might then assist managers to develop a more systematic approach to investment.

4.3 National and Institutional motivations for internationalisation

Even though higher education internationalisation is essentially implemented at the institutional level, governments can and do have a very direct impact on implementation and likely outcomes. For example through their own strategic investments, immigration and employment related legislation, taxation policies and regulatory frameworks. The previous sections have served to highlight the different mixes and priorities apparent and these will relate directly to the individual motivations of the universities and governments involved. Hans de Wit has reviewed a number of potential benefits[76],[77] and broadly categorised these as falling into four main areas (referred to by the author as rationales): academic; social-cultural; political; and economic.

However, de Wit (and co-author Jane Knight) concluded that there is no one single answer as to why higher education institutions , national governments, international bodies or the private sector i.e. banks, industry and foundations, are so actively involved in international education activities. They suggested that different rationales would require different means to deliver internationalisation. There is also overlap between rationales both within and across different stakeholder groups; the main differences suggested were likely to be in the ranking of the priorities. In general, stakeholders do not have one exclusive rationale but a combination of rationales for internationalisation with a hierarchy in priorities that are in general more implicit than explicit motives for internationalisation.

[75] Elkins, G., Devjee, F., & Farnsworth, J., "Visualising the 'internationalisation' of universities", *International Journal of Educational Management*, 2005, 19(4), pp. 318-329.
[76] Jane Knight, Hans de Wit, *Internationalisation of Higher Education in Asia Pacific Countries*, Amsterdam: EAIE 1997.
[77] Hans de Wit, *Strategies for Internationalisation of Higher Education, A Comparative Study of Australia, Canada, Europe and the United States of America*, Amsterdam: EAIE 1995.

Growing a knowledge economy

As was discussed in Section 3, supporting the growth of the country's knowledge economy is frequently proposed as the main rationale for internationalisation. This might be implemented through a variety of means including encouraging such activities as 'cutting edge' or fundamental international research partnerships and cooperation and also by facilitating the skilled migration of both students and professionals.

A number of countries have targeted and invest in the growth of international research collaboration, particularly with countries and in those disciplines they prioritise for the growth of their economies. For example the National Science Foundation of the US has opened offices in China, India and Paris, the latter being focused on growing joint activities across EU member states. The UK has developed offices to represent its National Research Councils in India, China and the US. Several other countries, including Germany, Finland, France and Sweden have foreign representative offices to facilitate their international research cooperation, particularly with the US. The importance and potential enhanced impact of the US and Europe for research partnerships is discussed in Section 5 below.

The objectives of growing leading research and encouraging skilled migration come together through the recruitment of international graduate students and postdoctoral researchers. For example approximately half of the international students in the US follow postgraduate programmes in US universities and many of these are for doctoral level research. Assessing the impact of the presence of such a high number of international research students in relation to national development is not straightforward but two studies have indicated the potentially immense contribution to US industry and research output:

> *" …the proportion of foreign born faculty with US doctoral degrees at US universities has gone up sharply during the past three decades to 20.4 percent in 1999. For engineering it rose from 18.6 percent to 34.7 percent in the same period…"*
>
> *(Gnanaraj Chellaraj[78] et al, University of Colorado, 2005)*

and

> *"'… a ten percent increase in the number of foreign graduate students (in the USA) would raise patent applications by 3.3 percent, university patent grants by 6 percent and non-university patent grants by 4 percent. However, enrolments of US graduate students have no detectable effect."*

Thus while the US seeks to attract all international students, it is graduate students in particular that nationally and institutionally that the US prioritises in particular:

> *"The United States must maintain or enhance its current quality and effectiveness in science and engineering. A principal objective should be to attract the best graduate students and postdoctoral scholars regardless of national origin"*[79].

[78] Chellaraj, Maskus and Mattoo, *The Contribution of Skilled Immigration and International Graduate Students to U.S. Innovation*, *World Bank Policy Research Working Paper* No. 3588, May 2005.

Ehrenberg has also provided a critique[80] of the importance of international graduate students to stimulate US science and engineering innovation, and also the importance of federal direct investment in higher education to support the growth of graduate student numbers.

The high level of dependence on international graduate students to contribute to research output is also apparent in the UK. For example over 50 percent of doctoral students in engineering, technology and the sciences are international[81]. Graduate student migration is discussed further in Section 5 below.

Similarly, the effects of return migration of researchers and scientists to their home country are likely to have a significant impact on the development of scientific and technological expertise in the local and potentially international context; however the incentives for return must be sufficiently attractive[82]. Various initiatives to support return migration were mentioned in Section 3.

Meeting skills gaps

A frequently mentioned priority for a country seeking to internationalise its higher education is 'to meet skill's gaps in the national economy'; this is also of specific importance in relation to attracting and retaining talented academic and research staff. To support such a national objective the targeted recruitment of international students as skilled migrants to meet labour force shortages is on the increase, most notably in Australia, New Zealand and USA but also in Canada and Germany. For the former three countries, their government's immigration and international education policies are now closely aligned, specifically to recruit international students and in economically important areas. The reasons that these are an attractive group for governments to encourage longer-term migration are various and include:

- They increase the recruiting country's pool of professional workers, particularly in skill areas important for economic development.
- Most economically developed societies have low birth rates and ageing populations, and recruiting young people, who are at the beginning of their working lives, helps to sustain the number of working-age adults needed to support the growing pool of retired and elderly.
- Graduates of the recruiting country's own tertiary institutions are more readily employed than graduates from other countries.
- The prospect of migration gives some countries a marketing advantage in recruiting fee-paying international students, which is particularly significant in countries in which education is now a major export industry.

The likelihood of securing employment in the destination country, after completing studies, is also becoming an increasingly important factor in international student choice. For further reference, more detailed analysis of the growing importance and relationships between

[79] Policy Implications of International Graduate Students and Postdoctoral Scholars in the US', Committee on Science, Engineering, and Public Policy, 2005.
[80] Ronald G. Ehrenberg, *Graduate Education, Innovation and Federal Responsibility*, ORAU/CGS Conference on Graduate Education and American Competitiveness, Washington DC, March 9, 2005.
[81] Kemp et al, *The UK's Competitive Advantage*, 2008.
[82] K. Thorn, L.B. Holm-Nielsen, *International Mobility of Researchers and Scientists – Policy Options for Turning a Drain to a Gain*, UNU-WIDER, Helsinki 2006.

skilled migration, international students and academic mobility has been undertaken by the OECD[83] (Tremblay 2005) and the World Institute for Development Economics Research[84].

Economic benefit, both current and future

Only a few countries have attempted to quantify the direct value of international education in general and international students in particular, to their national economies. A useful starting point is to consider trade data. The total value of the trade in education services throughout the OECD countries was estimated to be over US$30 billion (approximately €21 billion), or 3 percent of trade in all services[85]. With hindsight, this would seem to be a significant under-estimate. Official balance of payments accounting does not capture the full mix and thus value of education services, which results in the need for a more tailored analysis. Probably the most comprehensive analysis of education exports was undertaken for the UK by Geraint Johnes[86]. This analysis also contributed to a better understanding of the value, nature of activities and composition of what might be classified as UK 'education exports'. Johnes estimated that the total value of international education to the overall UK economy in 2002/3 was approximately €15 billion (see Table 4.2). An update of Johnes's original study by Pamela Lenton[87] for 2004/05 suggested that the value to the UK economy of international activities in *higher education alone* was about €7.3 billion per annum. Table 4.2 provides the more detailed analysis of the vlaue of each international education activity to the UK economy; it is presented here to indicate the relative proportions and direct economic value of each identified area of activity.

For the USA, the Institute for International Education, New York, calculated that the 582,900 international students in higher education institutions across the USA in 2006-07 contributed about US$20.7 billion to the US economy, although the net amount, after subtracting US institutional investments, was about US$14.5 billion. Morris[88] reports that the total value of all education exports to the Australian economy was A$13.9 billion (€8 billion) in 2005; of this about A$2.2 billion (€1.3 billion) was student fee revenue for the higher education sector. This placed international education as the fourth largest export item for Australia.

An additional dimension to the economic value of international students is their indirect contribution to national economies: many remain in their country of study to work, particularly in professional and skill shortage employment. Research students also add to the research output of their institution, which in turn has potential economic returns. These contributions are however difficult to quantify, given the lack of supporting data. Neil Kemp has published a more detailed discussion summarising the financing of internationalisation for both national governments and institutions[89].

[83] Karine Tremblay, "Academic Mobility and Immigration", *Journal of Studies in International Education*, vol. 9, no. 3, 196-228, 2005.
[84] K. Thorn and L.B. Holm-Nielsen (see above)
[85] D.J. Johnston, Paper presented at OECD/US Forum on Trade in Educational Services
[86] Geraint Johnes, *The Global Value of UK Education and Training Exports*; 2004 (for the British Council)
[87] Pamela Lenton, *The Value of UK Education and Training Exports: an Update*, University of Sheffield for the British Council: September 2007.
[88] S. Morris, "Education a Huge, and Growing, Economic Boom", *The Australian Financial Review*, 9 October 2006
[89] Neil Kemp, "Funding the Internationalisation of Higher Education", in: *Beyond 2010. Priorities and Challenges for Higher Education in the Next Decade*. Bonn: Lemmens, 2008 (ACA Papers on International Cooperation in Education)

Table 4.2: Total Value of Education and Training Exports to the UK Economy (2002-03)

Activity	Value (€'000)
Higher education: tuition *Comprises no- EU and EU students. Excludes scholarships.*	1809.8
Higher education: other spending *Comprises spending on goods and services by students other than tuition.*	2681.4
Trans-national higher education *Comprises franchise agreements, twinning agreements, joint programmes, validation, subcontracting and distance learning activity*	142.5
Other higher education *Comprises, visiting students to HE, research grants and contracts from overseas agents, expenditure of academic visitors to HEI's, private HE institutions.*	1145.9
Further education: tuition *excluding ELT. This may understate the true figure and is an area that requires further research*	56.0
Further education: other spending *excluding ELT Comprises spending on goods and services other than tuition*	437.3
Other further education *Comprises transnational FE provision and independent FE.*	398.6
English Language Teaching: tuition *Comprises ELT carried out in UK by private and public sector organisations, supply of ELT courses by UK residents overseas*	1174.1
English Language Teaching: other spending *Comprises spending on goods and services other than tuition*	714.2
Examinations/Professional bodies	217.3
Independent primary and secondary *Comprises nearly 98% boarding pupils from overseas so no expenditure Counted for food and lodging.(NB: probably an underestimate)*	30.2
Private sector training	2661.9
Publishing	1339.6
Educational equipment	726.6
Broadcasting *Comprises total sales of BBC and Channel 4 world-wide educational programming.*	950.2
TOTAL	**€14,768.8**

Source: G.Johnes et al, Study Commissioned by the British Council and the Department of Trade, UK

Political, diplomatic and social benefits

Many nations prioritise education internationalisation (and in particular attracting students) as part of their public diplomacy agenda, the consideration being that alumni have the potential to be long term ambassadors for the country, supporting trade, political, social and cultural links. Countries openly pursuing and investing in such policies, for various reasons, are a widely varying group and include the Netherlands. France, Singapore, Germany, China, Malaysia, Sweden, Australia, UK, South Africa and New Zealand.

The US in particular has always suggested a close inter-relationship between higher education internationalisation and international political benefit. Senator Fulbright described the benefits of educational exchange for the US:

> *"…. from the standpoint of future world peace and order, probably the most important and potentially rewarding of our foreign policy activities."*

This optimistic view on internationalisation as a force for peace, which has been dominant in US politics and higher education circles over the past fifty years, is still wide-spread and has found supporters in many other countries. It is interesting to note that in the post 9/11 eras of US international relations the encouragement of the international mobility of US students has

assumed a high priority. The recent Senator Simon Act is to ensure federal investment to grow the current level of US student external mobility from the current approximate 230,000[90] to over two million per annum. Similarly the EU's extremely successful development of the Erasmus Programme has resulted in high levels of student mobility within Europe that in turn has contributed much to a shared European understanding and also integration.

However, as de Wit[91] has indicated, exactly these political benefits might not always accrue as originally conceived; a period spent away from home in a foreign university often stimulates reflection on the student's own country and its society:

> *"Many national leaders have had their education abroad, and, in that other cultural environment, became more attached to their own national identity than before. International education is not only a confrontation with the other but also, and maybe even more, with the own culture."*

4.4 International competition, efficiency and effectiveness

While the improvement of effectiveness and efficiency of institutions has rarely been stated as an explicit objective of internationalisation, a number of governments have suggested that they have encouraged internationalisation as a means to promote both international and domestic competitiveness of their universities.

The Netherland's government in 2005 introduced full fees for non-EU students with one of the inherent objectives being to encourage the national universities to become more effective in their ability to compete and attract quality international students. Malaysia and Vietnam have both encouraged foreign universities to develop programmes in their respective countries both to meet surplus demand for domestic higher education places, as well as to compete with local institutions.

4.5 Comments on international students

Whilst the above described factors are individually important, inter-related and have contributed to the importance of the so-called 'academic trade,' it is the cross-border migration of students that is the most visible aspect of higher education internationalisation, it is the area most often prioritised and generally of the greatest financial value. It is this area that has grown in importance over the last ten years or so, as national governments have granted greater autonomy to their institutions to charge fees and operate in more market-orientated ways while at the same time often reducing real-term government funding of higher education. For example, over the last 25 years government investment in Australian higher education has dropped from 1.5 percent to 0.8 percent of GDP, despite a doubling of student numbers. Per student public funding of teaching and research functions is 40 percent of the 1977-78 level and growth in the number of domestic students has stopped, yet income from private sources, largely derived from international student tuition fees, supplement most universities' income so that they are sustainable entities contributing to the overall good of Australian society.

[90] Institute of International Education, *Open Doors 2009*, New York 2009.
[91] Hans de Wit, "Changing Rationales for the Internationalization of Higher Education", *International Higher Education*, Spring 1999

The importance of international fee revenues to institutions is well illustrated by reference to Table 4.3 that details a selection of institutions in the UK and Australia (these are the only countries that make available figures for the turnover of individual higher education institutions). For Central Queensland University the international fee revenue accounts for 45 percent of its turnover and for LSE (UK) it is nearly one third.

Table 4.3: Data on international student revenue and total revenue for select UK and Australian institutions

Institution	International student enrolments (2005)	International student revenue (Euro '000)	University total revenues (Euro '000)	Overseas as %age of total revenue
Australian HE institutions*				
Monash	17,200	105.00	552,600	19 %
Melbourne	8,900	101.00	653,300	15.5%
Sydney	9,000	82.40	624,300	13.2%
Central Queensland	13,800	79.60	174,100	45.7%
RMIT	15,000	78.20	307,800	25.4%
NSW	9,500	75.10	466,590	16.1%
Curtin UT	16,100	65.20	266,000	24.5%
Queensland	6,300	62.70	522,600	12.0%
Macquarie	9,600	59.00	222,600	26.5%
UK HE institutions**				
Manchester	7,300	71.00	796,700	8.9%
LSE	5,700	68.00	210,900	32.3%
Nottingham	6,500	63.00	478,000	13.2%
Oxford	6,100	52.40	845,500	6.2%
Edinburgh	4,300	41.20	596,300	6.9%
Cambridge	5,400	28.80	1,197,800	3.2%
Sheffield	4,400	36.50	423,000	8.7%
Westminster	5,600	26.10	182,900	14.3%
Northumbria	4,200	23.50	207,000	11.4%

Sources:
* Global Position and Position Taking: The Case of Australia; Simon Marginson; Journal of Studies in International Education, Vol. 11 No. 1, Spring 2007 5-32
** Times Higher Education 3 April 2008; HESA Data 2006-07

The reasons why some of the UK institutions have such a relatively high 'total revue' compared with others is normally due to the high costs associated with operating a medical school or faculty (NB: LSE is primarily for social sciences and related). In general in addition to international student fee revenue being a significant sum, institutions can normally employ the monies derived in more flexible ways compared to government grants or research contracts that might be tied to specific activities. Many institutions will also re-invest some of their international revenues in growing other aspects of their internationalisation strategies.

At the local level, an institution of higher education will benefit significantly from international students for a number of reasons including enhanced research output, internationalisation of the institution (its curricular and its staff and student bodies), qualitative improvement, revenue generation, improved efficiency and international competitiveness and growth of long term international cooperative activities.

4.6 Internationalisation, globalisation and higher education

Globalisation will likely affect each country in a different way due to its individual history, traditions, culture and priorities as well as how it connects with the rest of the world; it is mutli-faceted and will likely have multiple effects on education. While there is a dynamic relationship that draws together globalisation and internationalisation of education most authors consider these to be separate and want to maintain focus on the 'internationalisation of education' and to avoid using the term 'globalisation of education'. While it is important to recognise the close relationship between these two terms, they are not seen to be synonymous and are not used interchangeably.

Jane Knight has suggested that, while increasing globalisation clearly presents new opportunities, challenges, and risks for higher education, globalisation should be considered as a process that will impact on internationalisation; i.e. while internationalisation is changing the world of education, globalisation is shaping the environment in which intenraitonalisation might flourish.

Philip Altbach has considered the more detailed context of higher education in a more globalised world; the need is for education to embrace the economic, social and technological forces that are and will continue to shape the realities of the 21st Century[92]. He suggests that these elements might include advanced information technology; new approaches to financing including the related acceptance of market forces and commercialization; unprecedented mobility for students and academics; the global spread of common ideas about science and higher scholarship; and the role of English as the main international language of science.

While the state has traditionally been the main funder of higher education in most countries of the world, increasing massification has placed great strains on public finances so that most governments no longer believe they can adequately fund mass higher education. They are placing the onus on higher education institutions to diversify their revenue sources including particularly from student tuition fees (both domestic and international). These trends are part of the wider neo-liberal agenda which has considered higher education increasingly in economic terms a private good i.e. benefits accruing mainly to individuals who should pay for it, rather than a public good that primarily contributes benefits to society and thus should be financially supported by the state.

Section 5 explains how the global academic market place is growing fast and embraces increasingly more people and activities, for example there are currently over three million students studying internationally and it is estimated that this number will increase to eight million by 2025. Many other students are enrolled on degree programmes delivered trans-nationally including at international branch campuses. To this should be added the many thousands of visiting scholars and postdoctoral research fellows. All these groups are internationally mobile and, significantly, result in a global 'circulation' of researchers and academics.

This is an outcome that derives from changes induced by globalization, for example through the ease of transportation, the use of English as a common language for international higher education and research, the importance of innovations and communications available through information technology and internationalisation of the curricula.

[92] Philip G. Altbach: "Globalization and Forces for Change in Higher Education", *International Higher Education*, no. 50 (Winter 2008)

However the great advantages and benefits from this global circulation of talent accrues in the main to the traditional centres of learning, and particularly in the more wealthy countries. As Altbach suggests in the context of the shifting landscape in which higher education must be delivered globally:

> *" ….. while Thomas Friedman's 'flat world'[93] is a reality for the rich countries and universities, much of the rest of the world still finds itself in a traditional world of centres and peripheries, of peaks and valleys and involved in an increasingly difficult struggle to catch up and compete with those who have the greatest academic power"*

Thus in some ways globalisation can be viewed as inhibiting the desire to create a worldwide academic community based on cooperation and a shared vision of academic development. The globalisation of science and scholarship, ease of communication, and the circulation of the best academic talent worldwide has not yet led to equality in higher education.

[93] Thomas L. Friedman, *The World Is Flat: A Brief History of the Twenty-first Century*, 2005.

Section 5

Delivering internationalisation in higher education

This section considers in turn the main factors that were previously discussed in terms of enhancing institutional internationalisation, particularly those relating to the mobility of students and staff. Within this perspective, we place particular emphasis on international student recruitment, in response to a request from Arengufond.

5.1 International students and recruitment

Background

The previous sections discussed how important it is for an internationally active and competitive university to compete and recruit international students. This section considers the overall global mobility of international students, where they originate, where they seek to study and the successes or otherwise of countries and institutions in this global market. At the most basic level the recruitment of international students can be seen as dependent on four variables:

- destination country
- level of study
- subject of study
- home country of the student

Within each of these variables there are other key considerations for example language, perceived quality of institutions and relevance of their programmes, costs of study and the immigration regime of the destination country. The relevance and impact of all these factors are discussed.

However the international movement of students is by no means a modern phenomenon as, for over a thousand years, religious scholars have travelled the world in pursuit of higher learning – to India, the Middle East, Rome and other centres. From the later Middle Ages across Europe, first the aristocracy then aspiring scholars made their 'grand tours' in search of enlightenment and scholarship. The 19th Century saw greater impetus, particularly to meet the demands and to service the needs of Empire resulting in increased mobility of students from Africa, Latin America, South Asia, China and South East Asia, particularly to Europe. From the 1950s a new wave of students became globally mobile, particularly those from developing countries seeking to study in Europe and North America. They were often supported through bilateral and multilateral development assistance programmes, with the primary aim to support national development and infrastructure projects in their home countries.

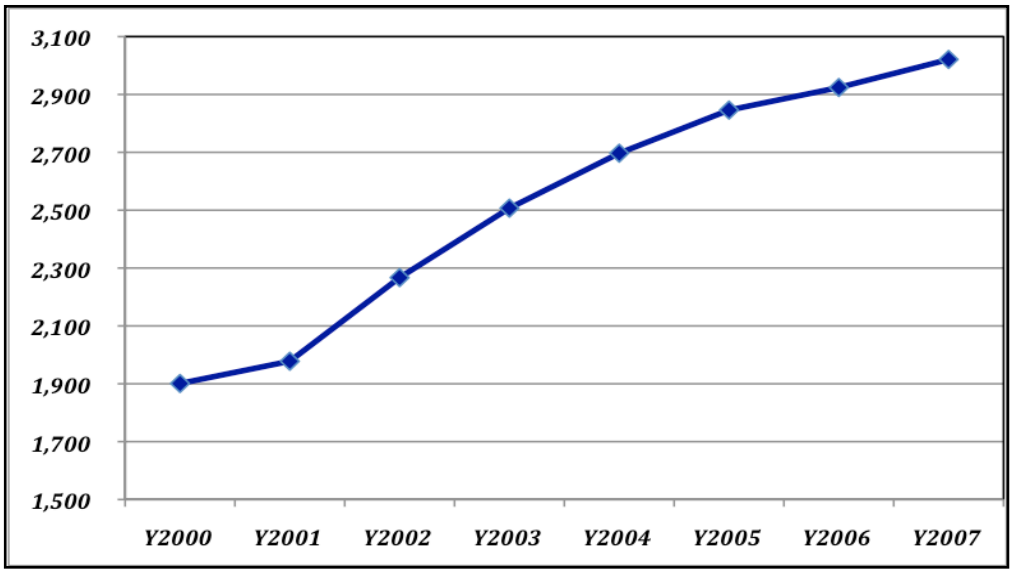
In more recent times international student mobility, involving both recruitment and exchanges, has become established as an important component of higher education and it is increasingly run as an enterprise as institutions compete internationally to attract the best students. It is also an activity with which all universities aspiring to be seen as 'international' must necessarily engage and this implies investing to ensure success. Understanding the

dynamics of the international student market, the motivations of students, their preferences and how thy might make choices of subjects and study destinations, are all essential to achieve success; taken together they are essential for guiding policy and investment strategies.

Demand for international study places

There are large numbers of internationally mobile students that seek undergraduate and postgraduate study[94]; their numbers have been growing at an average rate of about four percent for the last fifty years and for the last ten years this has accelerated to average about seven percent. Figure 5.1, based on UNESCO data, clearly shows the trend over the last eight years and this indicates that there are now well over three million students studying outside their home country.

Figure 5.1: Trend in growth in global mobility of international students



Source: UNESCO (2009)

A number of studies have been undertaken to seek to understand better these trends and predict likely future growth. IDP Education Australia presented their analysis in 2003[95] and estimated that by 2025 the total number of globally mobile students would be at least 7.2 million. This represented a 5.8 percent compound annual growth rate. It was also projected that about seventy percent of future global demand would derive from Asian countries. The model was based on a detailed study of mobility patterns involving some 137 countries and considering such factors as GDP changes, population trends, age specific participation rates for education and demand for tertiary studies. The result obtained was an assessment of gross trends.

This approach was refined further in a study by a UK-Australia team[96] with the introduction of discrete choice analysis to the original macro model and with a number of possible scenarios

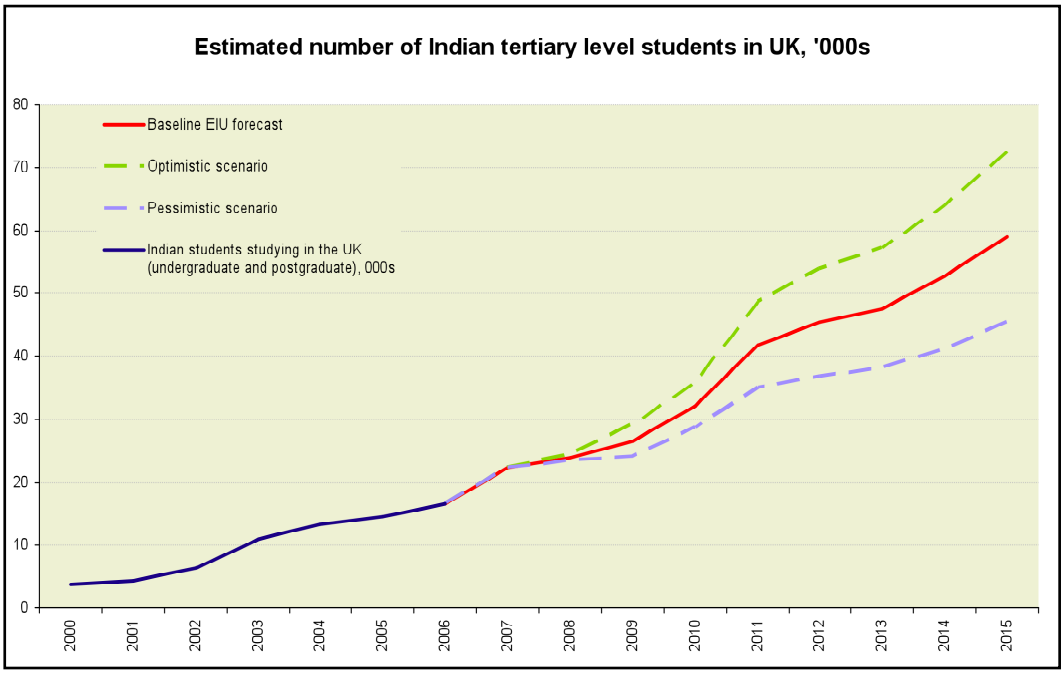
[94] An international student in this context is defined as a student with a nationality (passport) other than that of the country where he/she is studying (UNESCO/OECD, EUROSTAT)
[95] Anthony Böhm et al., *Global Student Mobility 2025*, IDP Education Australia 2002.
[96] Anthony Böhm, Neil Kemp: *Vision 2020: Forecasting International Student Mobility*, British Council and IDP Education Australia 2004.

applied to the model. This approach allowed for a greater disaggregation of the data to facilitate projections of main subject areas and also levels of study in demand (i.e. undergraduate, postgraduate taught and postgraduate research programmes). When the analysis was applied to predict international student flows to the UK (the only country so far covered at this level) the macro-projections indicated a high growth of nearly eight percent per annum and a median rate of 4.7 percent. Interestingly the 2008 level of international student recruitment to the UK is well ahead of that predicted by even the optimistic assumptions of the 2004 model.

The Economist Intelligence Unit (EIU) with the British Council (2007)[97] developed a different methodology towards understanding and projecting demand from international students. Their individual country models incorporated a number of variables such as trends in disposable household incomes, changing demographics and higher education participation rate; to date three countries have been assessed in detail – China, India and Nigeria. The results indicate:

- Mobility by Chinese students is predicted to continue to grow until about 2016 after which time the demographic impact of the 'one-child' policy will increasingly influence student numbers resulting in a decrease in numbers. However is spite of this there will still be large numbers of Chinese students seeking international study.
- The international mobility of Indian students will continue to grow significantly, influenced by a 'bulge' in the numbers of university age Indians over the next few years and the increase in household incomes. The EIU-BC projected demand from Indian students in the UK is provided in Figure 5.2.
- Nigerian student mobility is also projected to continue to grow over the periods to 2015. Currently the UK and US together account for about 80 per cent of all globally mobile Nigerians.

Figure 5.2: Projection of numbers of Indian students seeking higher education in UK (**Source:** Economist Intelligence Unit (2008))



[97] Andrew Williamson and Janet Ilieva, *Forecasting International Student Demand*; Paper presented at the Going Global 3 Conference, London 2008.

Main destination countries for students

The main destination countries for students are provided in Table 5.1. These data all derive from the UNESCO 2006 data set to ensure comparability. The latest (2007-08) US and UK enrolments as recorded by their respective national agencies[98] are 671,620 and 381,770. Together these two countries account for about 30 percent of internationally mobile higher education students. Australia, amongst the leading country destinations has been the most successful, given the relative size of its higher education system; New Zealand has also achieved high success – some 33,407 international students in a country of about 4.5 million.

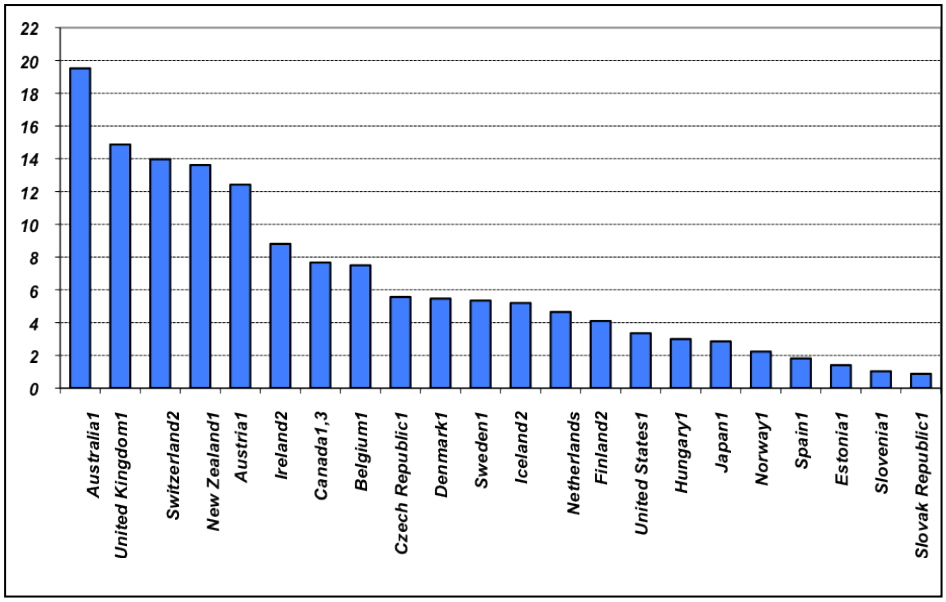
Table 5.1: Main destination countries for international students

Rank	Destination Country	Numbers
1	USA	595,874
2	UK	351,470
3	Germany	248,357
4	France	246,612
5	Australia	211,526
6	Japan	125,877
7	Russia	60,288
8	Italy	57,271
9	Austria	43,572
21	Sweden	22,135
30	Denmark	12,695
33	Finland	10,066
49	Lithuania	1,901
53	Latvia	1,433
58	Estonia	966
Source: UNESCO (2007)		

The levels of individual country successes are reflected in Figure 5.3 that details the proportion of international students as a fraction of all higher education students enrolled in each country. From this it is apparent Australia has the largest at about 19.5 percent international with UK second at 14.5 percent. Denmark with 5.5 percent is comparable to Sweden but ahead of Finland, Norway and Netherlands. (see Figure 5.3). These proportions also indicate the importance of English language in the international mobility of students as five of the top seven destination countries, in terms of international student proportions, are English speaking. For Estonia, with about 1.5 percent international students enrolled, there would seem to be potential for growth.

[98] Higher Education Statistics Agency (HESA, UK) and *Open Doors* (see above)

Figure 5.3: International students as a proportion of all enrolments in select destination countries (Source: UNESCO 2006)



It must be stressed that the figures above and the reference to the various mobility projections published indicate trends over a period of time; there are likely to be considerable annual fluctuations in terms of both destination and source countries. Understanding this is important as this implies a need to ensure that student destination countries and their institutions recruit international students from a diverse mix of source countries. Concentrations of students from any one country can result in over-dependence, which is very risky if problems emerge in that country. Such risks to the destination country might be financial, academic quality or reputational. For example several UK universities have proved to be very vulnerable when their revenue suddenly declined significantly following a reduction in Chinese student enrolments. In very general terms about 20 percent is seen to be about the critical level: essentially if a country or institution has more than 20 percent of its international students from just one country in its student population, or on a programme delivered in one of its institutions, this represents vulnerability.

In terms of learning from other countries' successes a few trends are apparent according to destination country preferences:

- Australian recruitment is dominated by students from South and East Asia, particularly at undergraduate levels;
- New Zealand has similar patterns of recruitment to that of Australia but is now over-dependent on recruitment from China;
- The Netherlands is over-dependent on students form Germany and Belgium in a number of its universities;
- A number of UK institutions had over 50 percent enrolment of Chinese students on their management and business programmes;
- The US is over-dependent on Chinese and Indian students for its research student enrolment;
- France recruits the majority of its international students from North and West Africa – and Morocco (28,000) and Algeria (21,000) dominate.

Germany provides an interesting example of diversity for while they have been very

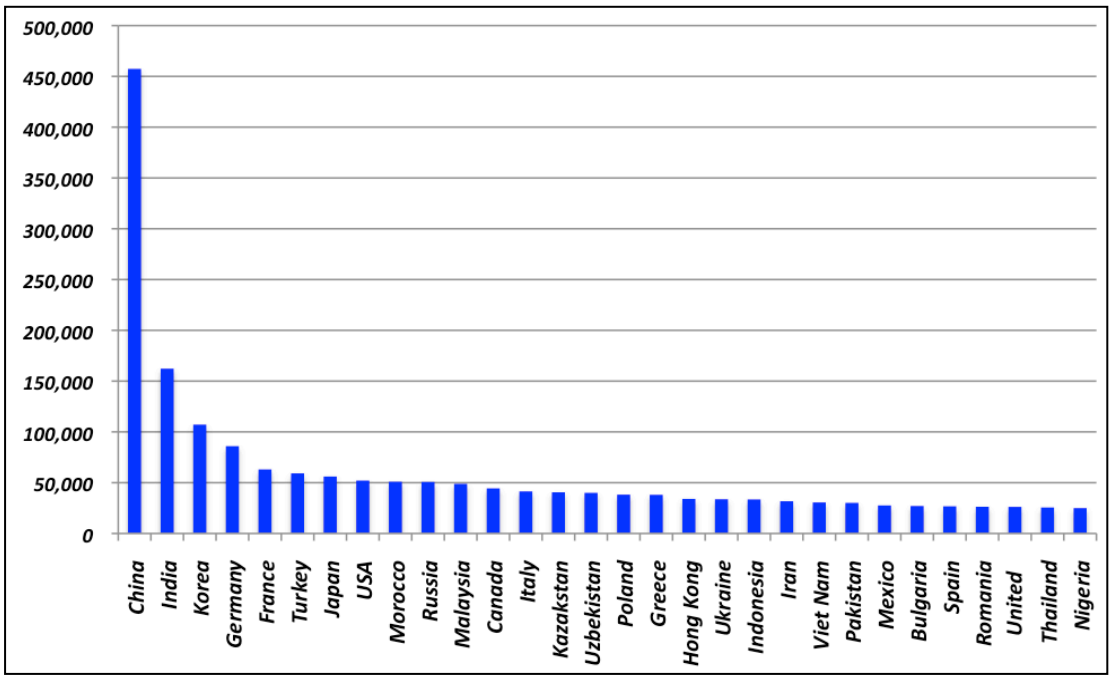
successful at recruiting students from East Europe (particularly from Russia, Poland, Bulgaria and Ukraine) through their international promotion efforts they have also managed to attract over 24,000 from China.

Main source countries for international students

In terms of the countries whose students are the most globally mobile, Figure 5.4 clearly indicates the current dominant position of India and China; together they account for over 20 percent of the global total of internationally mobile students. As was mentioned previously their numbers are likely to continue to grow over the next five years or so and they are thus likely to remain important source countries for international students for many years to come.

Figure 5.4: Numbers of students studying internationally according to main countries of origin

(**Source:** UNESCO 2007)



Korean and German students are the next most mobile groups; German student mobility is discussed below in the section covering European student mobility. Korean students particularly opt for study in the US, Japan, Australia and more recently China. Demand from Koreans is particularly strong for postgraduate programmes and In the US a large number follow doctoral programmes in science and technology. The UK manages to attract a good number of Korean students to its one-year Master's programmes.

While the number of US students internationally mobile is only reported as just over 50,000 according to UNESCO it should be remembered that there are over 230,000 US students following study abroad programmes each year[99]. The majority of these are not counted in the official statistics as they are on short programmes. These have proved to be an important group for many European institutions for, not only do they provide an additional source of

[99] *Open Doors 2009* (see above)

revenue, the US university partnerships that are necessary to support their programmes can also lead to other activities, including research cooperation.

There are a large number of countries that have between 25,000 and 50,000 of their students seeking international study and many of these will offer great recruitment potential for Estonia. However the need is to undertake more detailed market research in order to better understand likely demand patterns and hence how investment in recruitment might be prioritised.

Levels of study in demand

There are no comprehensive disaggregated data available that provide details of the levels of study in demand across the world. From the data produced separately by the UK and US it is apparent that there is an approximately even split between undergraduate and postgraduate international student enrolments across their universities. For Australia and New Zealand the dominant international student group are at the undergraduate level and particularly from East and South Asia.

A more recent trend has been the growth of English medium professionally orientated Master's programmes across many countries, particularly to attract international students (see section below). There is good indication of a growing demand for such programmes (as evidenced for the UK, Netherlands, Germany) as increased competition for employment forces more students to seek these programmes to provide better opportunities in a competitive labour market.

A further set of data that is not reported (by UNESCO) at the global level are the large numbers of students following shorter periods on international exchange programmes. US study abroad students have already been mentioned and to these need to be added the large numbers following Erasmus and other mobility programmes in Europe. Many of the world's most successful universities have active exchange programmes supporting the two-way mobility of students.

It is also apparent that there are trends in the levels of study that are directly related to country of student origin. For example most internationally mobile Indian students are studying at the postgraduate level. Nigerian students in the UK (their main destination country) are predominantly postgraduate. Again more detailed market research will facilitate prioritisation and decision-making.

Subjects of study in demand

In general terms international students tend to be concentrated in a limited range of disciplines and this holds for both undergraduate and postgraduate enrolments. Again there is only limited data available as subject breakdowns are not included in the UNESCO data. What is apparent from those countries that do report according to subject the dominant demand is for management, business and finance related programmes (on average accounting for over a quarter of all international enrolments). Table 5.2 provides a brief summary of UK data according to levels and broad subject areas. From informal discussions similar patterns are apparent in New Zealand, US and Australia and also for other European countries.

Table 5.2: Proportional enrolments of international students in UK higher education according to broad subject areas and levels of study (HESA UK 2008)

	PG Research	PG Taught	Undergrad	All (includes non-degree)
Medical and biosciences related	21%	10%	14%	14%
Physical and computer sciences	19%	15%	10%	10%
Engineering and technology	20%	13%	17%	15%
Business and management	7%	36%	25%	25%
Social sciences	14%	14%	14%	14%
Humanities, languages and arts	15%	6%	15%	15%
Total students enrolled	**52,900**	**135,200**	**135,200**	**382,070**

Note that as discussed below, the ACA survey[100] of degree programmes in Europe, offered through the English medium, identified a similar pattern to that observed in the UK with the proportions of enrolments according to discipline being engineering (27 percent - this included computing and some science disciplines), business and management studies (24 percent), social sciences (e.g. economics, politics) (21 percent). The only main differences are the larger numbers of social science enrolments in the rest of Europe and the importance of arts, languages and humanities in UK. The latter subjects are in demand in the UK universities by international students from West Europe, the US and Canada.

A striking feature of UK international student enrolments is the importance of taught postgraduate programmes (mainly for Masters degrees), particularly for business and management; these account for some 35 percent of enrolments. Similarly there is strong international interest in postgraduate research related to medical and biosciences. A further analysis of the UK data indicates that within engineering and technology the largest group of students are following electronics related subjects; computing and IT account for over 10 percent of postgraduate enrolments; and within social sciences economics is by far the largest topic.

It is important to note that there has been a particular trend in demand for applied and vocationally orientated degree programmes both at undergraduate and postgraduate levels over the last few years, given the increasing need to acquire qualifications that offer better employment prospects in a competitive labour market.

International student mobility within Europe

Arengufund indicated a particular interest in the potential to attract students from Europe and this section considers European student mobility in more detail. Of note is that most international student enrolments across European universities involve the mobility of students from within Europe (apart from the UK). The success of the EU Erasmus programme has contributed much and encouraged intra-European mobility; however there is also significant mobility for attendance on full undergraduate and postgraduate degree programmes, i.e. not based on short-term student exchanges. Overall European students are highly mobile as can be seen from Table 5.3, which shows the total numbers of European students that study internationally according to the country of origin of the student. The largest numbers of internationally mobile European students come from Germany followed by France, Turkey and Russia. However it is notable that, given the population size of Estonia, its students are

[100] Bernd Wächter, Friedhelm Maiworm, *English-Taught Programmes in European Higher Education. The Picture in 2007*, Lemmens: Bonn 2008 (ACA Papers on International Cooperation in Education)

proportionally probably already among the most mobile in Europe and amongst the leading in the world.

A more detailed analysis of mobility patterns within Europe indicates a complex picture as mobility patterns might vary greatly with history, language, geographic proximity, presence of relatives and other personal factors, for example:

- Russian students tend to favour Germany as their most important destination country; Ukraine and Kazakhstan are their second and third choices.
- Ukrainian students study in Russia in large numbers.
- Germany is also the lead destination for students from Hungary, Poland and Bulgaria.
- The UK is the most popular destination for Greek and Cypriot students

Thus, although overall the numbers seeking international studies are large, a variety of influencing factors must be better understood before making strategic decisions regarding country prioritisation for recruitment and these might involve historic, language, political and cultural ties that all influence student choice of destination.

Table 5.3: Numbers of students from each European country studying internationally (UNESCO 2008)

Germany	86,000	Slovak R	24,900	Bosnia	12,900
France	63,000	Cyprus	23,215	Belgium	11,400
Turkey	59,100	Albania	21,000	Switzerland	11,000
Russia	50,700	Ireland	19,600	Croatia	10,300
Italy	41,400	Belarus	15,600	Finland	9,520
Poland	38,200	Sweden	14,700	Lithuania	9,500
Greece	38,000	Portugal	14,500	Georgia	8,500
Ukraine	33,700	Norway	13,700	Hungary	8,100
Bulgaria	27,000	Serbia	13,700	Czech	8,100
Spain	26,700	Netherlands	13,300	Latvia	5,000
Romania	26,300	Moldova	13,000	Estonia	4,800
UK	26,100	Austria	12,900		

A further consideration is the need to understand better the trends in mobility apparent from individual countries: for example significantly fewer Turkish and Greek students now seek international study as compared with students from the two countries five years ago. There has also been a slowing of demand for international study by Hungarian students, which is quite surprising given the continuing growth in demand from the neighbouring countries.

Those countries that have seen sharp recent rises in international mobility of their students include Russia, Poland, Bulgaria and Romania. The following data indicate the large proportions of regional mobility within Europe:

- Netherlands: students from Germany and Belgium comprise about 36 percent of total international enrolments. Overall European students account for 55 percent of all international enrolments (NUFFIC data);
- Sweden: about 60 percent of long term enrolments are from Europe;
- Germany: European enrolments account for about 65 percent of all international; the largest single country group originates from China, though.
- France is more dependent on mobility from Francophone countries with students from North and West Africa constituting about 40 percent and European students

(53,000) a little over 20 percent of all French international student enrolments.

- The UK has the largest total number of mobile students from European countries (over 130,000) and together these represent over 30 percent of all UK international enrolments.

Given proximity and some similarities with Estonia, a comparison of mobility in Nordic countries is provided in Table 5.4; this indicates the major source countries for international students in Denmark, Sweden, Finland and Norway. However it should be noted that these figures relate to UNESCO data for 2007 at which time fees for non-EU/EEA had only recently been introduced in Denmark; declines in non-EU enrolments in the country are thus likely. A number of clear trends are apparent from these data:

- There is significant mobility between Nordic countries;
- Finland has been the most successful Nordic country to date at diversifying recruitment to countries outside EU/EEA;
- Norway and Finland attract Russian students, but they only come in relatively small numbers to Denmark and Sweden;
- Chinese students are the largest cohort of non-European students across all countries (NB over 600 were estimated to be studying in Sweden, the lack of mention of these in the UNESCO data was said to be a reporting error from Sweden);
- There are only small numbers of Indian students in all four countries in comparison with other major destination countries around the world;
- German students are studying in all countries and in significant numbers;
- Compared with enrolments in other EU member states, the numbers of students from the 'post 2004' member states are relatively small (i.e. students from Poland, Bulgaria, Hungary, Czech and Slovak Republics and Baltic states).

Table 5.4: Numbers of international students in Norway, Sweden, Denmark and Finland according to source countries (UNESCO 2007)

Norway		Sweden		Denmark		Finland	
All	**14,297**	**All**	**19966**	**All**	**10,251**	All	10,066
Sweden	1,179	Germany	1,856	Norway	1,529	China	1,677
Denmark	863	France	1,180	UK	1,394	Russia	1,182
Russia	772	Spain	792	Germany	872	Estonia	664
China	630	Finland	557	Iceland	804	Sweden	572
Germany	579	USA	529	China	793	Germany	399
UK	345	Netherlands	485	Sweden	636	Kenya	312
USA	344	Italy	401	USA	566	Nigeria	233
Finland	291	Austria	358	France	448	USA	212
Iran	274	Poland	347	Spain	286	Ghana	211
Ethiopia	252	UK	306	Australia	222	India	197
Iceland	245	Australia	246	Belgium	150	UK	189
Iraq	219	Canada	238	Switzerland	148	Pakistan	189
Bosnia	199	Czech	186	Italy	130	Poland	170
Pakistan	174	Belgium	183	Poland	122	Bgldesh	163
Poland	172	Denmark	170	Ireland	116	France	160
Netherld	163	Switzer	161	Netherlands	111	Italy	159

The international demand for professional Masters' programmes

A further interest mentioned by Arengufund was the demand for postgraduate programmes, particularly for Masters' degrees in computing and IT related subjects. This section considers the patterns of supply and demand for all international students, including in particular to and from European destinations. There has been a rapid growth over the last 10 years of applied, professionally orientated Masters' degree programmes in many European countries, particularly to attract international students. This has happened for a number of reasons, including the need for students to acquire higher-level professional skills to compete more effectively in the global labour market.

Another good reason for an institution recruiting Mater's degree students is that these students frequently progress to becoming research students or staff at the institution; a period spent on a postgraduate programme allows the academic staff to assess their likely competencies as a researcher.

An important consideration is that many of these programmes are delivered through the medium of English. A very comprehensive study of English medium programmes taught in European higher education was undertaken in 2007 through ACA[101], Brussels (NB: UK, Ireland and Malta were not included in the study). This was an update of a 2002 study and almost 2,400 English medium programmes were identified (compared to about 700 in 2002). The majority of programmes surveyed were at Master's level and these were spread unevenly across Europe, with the main concentration of provision being in North Europe. The leading provider country was Netherlands, with over 1,000 such programmes, then Finland and Cyprus, followed by Sweden, Switzerland, Denmark and Norway. Countries such as Hungary and Germany formed a middle group, while southern Europe had very few. Cyprus was an exception and was well positioned with large student numbers following its English-taught programmes; the numbers of students per programme for Cyprus far exceeded those on offer in most other countries.

This growth is a very recent phenomenon and over 50 percent of programmes identified were reported to have been started over the last four years. Across Europe the Master's programmes tend to be applied and vocationally orientated with the following subject proportions: Engineering (27 percent), Business and management studies (24 percent), Social sciences (e.g. economics, politics) (21 percent).

Students following English-medium programmes in Europe are predominantly foreigners in their country of study (65 percent of enrolments on average); amongst the non-domestic students enrolled, the largest group was from other European countries (36 percent), followed by Asians (34 percent) and Africans (12 percent).

The ACA study identified that the main motivation for developing the programmes was reported as *"to attract foreign students"* , followed by the need to "*make domestic students 'fit' for the global/international labour market".* Some way behind these came the objective to *"sharpen the profile of the institution"* then the development-related aim of *"providing high-level education for third-world students"*.

The duration of these programmes varied considerably between countries as well as within countries. For example while many countries have taken the view that Bologna compliance requires a 2-year programme (i.e. 2 x 60 ECTS), some countries offer one year courses: in the UK and Sweden the large majority of Masters programmes are one year, for the

[101] Bernd Wächter, Friedhelm Maiworm, *English-Taught Programmes in European Higher Education* (see above).

Netherlands there is a mix of one and two years. In general the 'justification' for one-year programmes is that two academic years are delivered in one single year. The average duration for a Master's programme recorded through the ACA study was 1.7 years.

The international students on the programmes had considerable variations in terms of backgrounds and experience. Course directors identified a number of difficulties that needed to be addressed:

- English language proficiency was identified as posing some problems. While the stated need was to ensure high competence for all students fully prior to offering admission (e.g. using IELTS or TOEFL), it was noticeable that a significant proportion of countries and institutions had no policy on EL testing or the provision of pre-course English tuition. By comparison Australian, New Zealand and UK institutions insist on rigorous adherence to IELTS requirements and frequently make available six to nine months of pre-course English tuition (at an additional fee), or require the student to make arrangements through a separate college or language school. Offering ELT tuition in parallel with the main academic programme (i.e. in comparison with pre-course tuition) is not to be recommended as experience has shown that inevitably students drop even further behind in their main studies.
- Lack of skills in the language of the host country was also seen as a major problem, particularly associated with social life and also obtaining part time employment to contribute to study related costs;
- Intercultural challenges: the difficulties were associated with adjusting to a new country and cultures as well as the different approaches to teaching and learning;
- Varying academic backgrounds resulting in differing levels of knowledge across the subject areas.

An analysis of the patterns of enrolments of international students to postgraduate taught programmes in the UK can provide some useful insights in terms of patterns of demand as the UK is the leading country for enrolments of international students on taught postgraduate programmes. It is also the only country that makes publicly available well-differentiated data and detailed analysis of the subjects, nationalities and related information on students following these programmes. This focus on the UK is also justified as it does charge fees and recruits more international students for Masters programmes than the rest of Europe combined. For various reasons UK universities have developed and marketed these programmes strongly thus these data usefully reflect demand in the global market. Table 5,5 details enrolments according to the main student source countries (the total numbers of international students for all study levels i.e. undergraduate and postgraduate totals, are provided for information). The overwhelming importance of Chinese and Indian students for Master's recruitment is very clear with the other leading non-EU/EEA enrolments originating from USA, Pakistan and Nigeria. However also of note are the significant numbers enrolled from Europe, led by Ireland, France and Germany but also from Cyprus, Italy and Poland. As is mentioned below many of these, including the Europeans, are willing to pay significant fees to attend.

Table 5.5: Main source countries for recruitment of international students to postgraduate taught programmes to the UK (HESA 2007-08)

Nationality	Total enrolled PGT (mainly masters)	Total all levels from the country in UK
Total All	135,210	381,770
China	20706	48838
India	19593	27399
Nigeria	7004	12190
Greece	5752	13948
United States	5647	21426
Pakistan	5168	9513
Ireland	5136	15549
Taiwan	4104	6354
Germany	3598	17111
France	3407	16794
Thailand	2539	4719
Canada	2323	6017
Cyprus	2170	9820
Malaysia	2155	12396
Hong Kong (SAR)	1766	10210
Italy	1763	7085
Japan	1673	5127
Poland	1587	8878
S Korea	1390	4539
Spain	1380	8074
Ghana	1367	2313
Turkey	1253	2595
Netherlands	1235	3523
Bangladesh	1224	2753
Saudi Arabia	1182	3811
Sri Lanka	1092	3199
Russia	1,000	2725

The subject areas of priority for enrolments in UK universities differ somewhat from those identified for other European countries through the ACA study. For example, the UK appears to have fewer enrolled in social studies disciplines compared with the rest of Europe. Considering priority subjects according to countries of student origin there are some notable variations and these need to be considered in any Estonian strategy that prioritises particular countries:

- PG students from China: 55 percent are in business related subjects and about 20 percent in engineering and technology.
- PG students from India: 45 percent in business related subjects, 30 percent in engineering and technology, 12 percent in bio- and medical sciences
- PG students from the US: 25 percent in arts and humanities, 25 percent in social studies and law,
- PG students from Malaysia: 30 percent are in engineering and technology
- PG students from Russia: nearly two thirds of Russian students are enrolled in business and management.

About 25 percent of European students following postgraduate taught programmes in the UK are studying in management and business related disciplines; this 25 percent proportion of

PGT enrolments is a similar proportion for enrolment from most EU states. While there are no clear trends in the demand for other programmes, social studies (mainly economics and politics) are popular. About a quarter of Greek students and about 20 percent of Polish students are in technology related disciplines.

This clearly illustrates how additional market research might usefully add to an understanding of demand patterns and thus might advise appropriate prioritisation of investment and marketing strategies for Estonia or any other country seeking to enroll more international students.

5.2 Finance, pricing and scholarships

There has only been limited analysis on the financing of international students, with publicly available data provided only from Australia, US and UK. These data however all indicate that the large majority of international students meet their costs from personal funds – their own, from their family and also loans. Even when students are studying in those countries with 'no fees', the costs of living can prove to require €15,000 per annum. There is only a small incidence of employer sponsorship of students. However international students frequently seek to supplement their resources through some form of part-time employment during their study programme. Regulations allowing for periods of paid employment of between 12 and 20 hours per week tend to be the norm for many European host countries.

The ability to offer scholarships is also important both to attract high quality applicants as well as to promote a countrys' institutions. For the latter these might best be employed as part of a marketing strategy for the programme (discussed in more detail below).

The ACA study identified that across European English medium programmes more than two thirds of all programmes on offer charged tuition fees, and that this proportion had grown considerably over the last few years. Only Norway and Sweden remain primarily 'fee-free', although for Sweden this is likely soon to change. Fee levels varied greatly and on a European average, the annual fee for EU/EEA/domestic students was about €3,400 and for non-EU/EEA international students was €6,300. Amongst those institutions reporting in the surveys, Danish programmes were on average the most expensive, at €11,000 on average. The least expensive programme in Europe charged the largely symbolic sum of €150 and the most expensive was €26,000 per year. However there is an increasing trend in Europe towards pricing programmes for all students (i.e. EU and non-EU) at the same level, as has happened already for many MBA programmes. Table 5.6 below provides some comparative fees and living costs' data for a selection of applied Master's programmes in computing/IT related subjects and for a number of universities and countries.

Table 5.6: Comparative total costs for international students of following a Masters degree in computing for a selection of universities and countries and according to duration of programme

University	Duration (yrs)	Total fees	Total living costs	Total (fees + living)
Melbourne	2	€ 33,341	€ 20,592	**€ 53,933**
NYU	1.5	€ 33,188	€ 18,000	**€ 51,188**
Nottingham	1	€ 15,290	€ 11,988	**€ 27,278**
Coventry	1	€ 9,966	€ 11,988	**€ 21,954**
Groningen	2	€ 18,600	€ 19,200	**€ 37,800**
Tilburg	1	€ 10,296	€ 9,600	**€ 19,896**
Copenhagen	2	€ 29,333	€ 24,322	**€ 53,655**
Auckland (NZ)	1	€ 12,188	€ 8,583	**€ 20,771**
Note: for European universities the fees quoted only apply to non-EU international students **Source:** University websites				

Table 5.6 also illustrates the significant differences in total costs to international students between one and two year programmes. At this level the desirability of one-year programmes is also high because the typical student on applied Master's programmes will probably be in employment, possibly with a family, and hence seek to minimise the time away studying, and the associated opportunity costs through loss of salary. This goes some way to explaining why the UK with its large number of one year applied programmes is an attractive global destination for Master's degree students.

A further lesson from these data is that the international market for Master's programmes does not yet appear to be very price-sensitive: both Melbourne University and New York University are very successful at recruiting and at very much higher costs to students. The international reputation of the university while having some influence is not as strong as might be expected. A contributing factor for students willing to pay higher fees for Australian and US university programmes could be the greater likelihood of migration for employment on completion of the programme. Another possibility is that intending students are not sufficiently well informed regarding costs to make a decision based on a rational cost-quality assessment.

A similar analysis concerning the costs of MBA programmes is also revealing, with course fees varying greatly across the world from as low as €6,000 to €40,000. While AMBA accreditation[102] is important there would seem to be other factors in operation, e.g. institutions use their pricing of programmes as part of their strategy for international market positioning and reputation. For MBA programmes it is increasingly frequent to observe that EU/EEA students are charged the same as non-EU/EEA; where there is a differential it might be small.

The duration of MBA programmes varies greatly, from 12 to 24 months, and with many in the 15 to 18 months range. There is also a difference for those programmes classed as 'Executive MBA' that are mainly part-time, priced higher and often require some form of funding partnerships with employers. These can pose problems for international students given the normal part-time patterns of study; however some programmes have been developed that offer the formal taught components in one or two intensive 'residential' periods, e.g. two or three one month periods during the 18 or 24 month total programme duration.

[102] Association of MBAs, an accreditation agency.

5.3 Motivations: why do students seek to study internationally?

There are many reasons behind the actual development and subsequent growth of international student mobility for degree level studies, but at its core is the principle that students, like any other group, will seek meaningful undergraduate and postgraduate opportunities elsewhere should their local government or system of higher education not provide them with the relevant experiences at home. With the rise in the dominance of English as the common language of commerce and diplomacy have the numbers of internationally mobile students seeking opportunities through the English language also grown.

To consider in more detail what might motivate international students it is essential to understand the inter-related factors that influence their choice of study destination and programme. These factors will also vary significantly according to the country from where the students originate, the destination country, the level of study and the subject of interest. While there has been some research to explore this area in more detail, the majority of studies have been undertaken by market research organisations and not academic researchers, thus limited detailed information is available in the public domain. There continues to be a need for more detailed and systematic study of the factors that influence students' study choices. However, this section seeks to explore a number of the models that have been discussed in the limited literature.

The Push-Pull Model: Mazzarol and Souter (2002)[103] argued that there are a number of 'push' factors that might motivate the decision to study overseas and a student might base their decision on one or several of these in combination. The factors suggested were: the overseas course is better than those available locally; the available programmes within their home country are difficult to access or the programmes they require are not available locally; they would gain a better understanding of another culture; there is some intention to migrate after graduation.

Considering the 'pull' factors associated with attracting a student to a particular country, the same study suggested that these included:

- The quality and reputation of the country and its higher education (probably the most important factor)
- Relative costs of study, including the ability to work part-time
- Social and cultural influences – level of crime, racial and/or religious discrimination
- Social links – family and friends already in the country
- Geographic proximity or other national or historic ties between the home and destination countries;
- Environment (but note that this can also have a down-side as while the climate in Australia was cited as popular for Northern European and South East Asian students, those from Japan and the USA viewed Australia as a place of 'holidays, beaches and fun', not for serious study!)

Other evidence: A number of studies by the market research organisation i-graduate International Insight[104], suggested that international students might be divided into a number

[103] Tim Mazzarol, Geoffrey N. Soutar, "Push-pull" Factors Influencing International Student Destination Choice"; *International Journal of Educational Management*, vol. 16, issue 2, 2002.
[104] Will Archer, *The New Seekers at Rethinking Higher Education*, Paper presented at the conference The Practice of Internationalisation, London, March 2008.

of distinct groups (five were suggested), according to their motivations. The motivations identified included those who primarily were concerned with future income maximisation and status; those who treat study as enjoyable, not a means to an end but an end in itself, i.e. as 'personal consumption'; and others who pursue higher education as a social good, i.e. not motivated by future employment, salaries and materialism but wanting to 'make a difference' in the world.

The UK-Australia Vision 2020 study[105] reviewed the variety of factors previously presented in the literature regarding student choice and used these in its discrete choice model. There were six identified and these were termed 'Attractiveness Factors', these were:

- Quality of education
- Employment prospects
- Affordability
- Personal security
- Lifestyle
- Education Accessibility

As the Mazzarol and Souter study also indicated, knowledge and awareness of the potential host country was a key factor in determining whether a student will study in one destination over another. Research to explore furhter decision making by Asian students[106] also indicated that for many intending intenrational students the first decision they make is choice of country[107] and only then do they explore the study options avaialble at institutions in the country. For this reason many countries have developed strong campaigns of 'country branding' to ensure that they are more clearly visible to intending students.

A large-scale survey by ACA[108] concerning the perceptions of European higher education in a number of countries concluded that Europe's disdvantage relative to its competitors (particualrly US and Austraila) was its inability to attract a significant number of Asian students. Also there were just three countries that tended to dominate international student flows in Europe: France, Germany and the UK. Additionally, in most of the key countires for recruitment outside Europe there was very little knowledge of programmes available from Europe, other than from the three countries mentioned.

However as a number of other market research studies (particularly from i-graduate) have indicated, the key influence on choice of country and institution destination is through 'word of mouth', particularly from friends and family, including alumni who might have studied in the country under consideration. Similarly staff at the students' home institution can be a major influence, particularly for intending postgraduates. Parental influence was identified as a particularly strong for the choice of destination country and/or institution amongst undergraduates, but this is less so for postgraduates.

It should be stressed that 'word of mouth' influence is not just confined to actual meetings or contact between individuals for with the vast numbers of social networking sites, blogs and other electronically based exchanges, international students are particularly aware of what a country or institution might offer from many sources. Little work has yet been undertaken on to identify the exact importance of these media, but all indications are that they are already

[105] Anthony Böhm, Neil Kemp, *Vision 2020: Forecasting International Student Mobility* (see above)
[106] Alison Doorbar, *The Asian Student of 2005*, Policy update provided by JWT UK (2005)
[107] M. Lawley, Dennis Blight, *Reasons for Choice of an Overseas Study Destination*, IDP Education Australia 1998
[108] Bernd Wächter, Franziska Muche, *Perceptions of European Higher Education in Third Countries*, European Commission: Luxembourg 2006.

important and will become increasingly more so, given the increased sophistication in the devleopment of new sites that enable more focused communication.

Associated with electronic communications is the role of more formal country and institutional websites. While these might not be the first point of access for an intending student they are a vital means for them to gain detailed information about the country, the institution, the programmes and teaching staff. Given the sums of money that they will be investing in their studies,they need to obtain a strong endorsement and confirmation that they are making an apprpriate choice of destination.

In reality intending students will ultimately be influenced by a wide mix of people and information sources and these might vary considerably according to country and level of study. As a brief summary the following are the main drivers identified that might motivate a student to seek education in another country:

- Lack of provision of appropriate programmes in their home country
- Acquisition of a qualification that is internationally recognised (including in English medium), i.e. with a strong associated global brand value
- Enhanced prospects for employment, at home or internationally, including in the destination country
- Study in an international language, particularly English
- Pathway to migration and employment in the country of study destination
- Scholarship or other funding support available
- Education as a 'consumption' item – students enjoy the experience of studying and living in another culture.

Other influences include relationships with the destination country, for example including historical ties, language, family members resident in the country and geographic proximity. In practice, for each individual student a mix of the above motivations will come into play when they make their destination choice, and these will vary according to nationality, levels and subjects of study and personal factors.

5.4 What are the barriers to international student recruitment?

Availability of English medium programmes

English is the language of demand for study. It is no coincidence that five out of the seven main destination countries for international students are first language English. Many other countries have responded to this opportunity. This also has implications concerning the testing of English competencies prior to study, the availability of remedial and pre-course English tuition and also support while studying.

Availability of appropriate study programmes

The previous discussion in this section clearly indicates the patterns of demand for international study according to subject and levels of study. From this it was seen that the main programmes are limited to a relatively small number of subject areas. Understanding this is crucial and a major step to success, provided it is backed by appropriate strategies, clearly focused on a limited number of markets and with the necessary level of investment for

promotion.

As was also mentioned, the potential to offer a one-year applied Master's degree programme is definitely attractive, given the evidence from UK and a number of other countries. This is not to say, however, that appropriate 2-year programmes cannot achieve success, as has been seen in Netherlands, US, and Australia. If it proves necessary to offer 2-year programmes, given that Estonia is not really known in the international student market, then it is essential the other factors mentioned below should be considered in detail.

The postgraduate Master's programmes most likely to attract international students are in

- Management, business and finance (particularly for MBAs);
- Computing and IT related;
- Electronics;
- Economics.

That is not to say that other disciplines and programmes cannot be attractive, as there are always 'niche' areas that a country might promote, for example in music, performing or visual arts, design, special areas of medicine or biosciences. In all of these areas, some countries and institutions have managed to be successful.

Flexible and distributed learning

A fast growing development over the last ten years or so has been the growth of internationally delivered programmes, both on overseas campuses and through distance and blended learning. For example, over 30 percent of all international students enrolled on UK degree programmes are studying in their own country; the proportions involved for Australia are similar. In addition to the direct enrolment in a foreign country, the use of such programmes can offer an institution the potential to grow new partnerships with overseas universities, including also encouraging mobility to their home campus. This is discussed in more detail below.

It is clear form the previous discussions that a major driver for the growth of international study has been the need to acquire qualifications and skills that would help to ensure future employment. Any programmes that offer internships, some form of work experience or opportunities to cooperate with companies, including leading to possible employment, will be in demand.

The role of scholarships

The ability of a country or an institution to offer scholarships is an essential component of international student recruitment, particularly if the country charges fees to non-EU international students. Scholarships are vital for any institution wanting to be in a position to attract world-class students for their priority subject areas. Most leading research universities hold such scholarships on offer and any aspiring institution wishing to be able compete over international talent must have some on offer.

In subject areas where there might be researcher shortages (e.g. in the STEM disciplines[109]), the scholarships need to be especially attractive, meeting most of the costs of the

[109] STEM: Science, Technology, Engineering and Mathematics

programme. For example, in the US over 90 percent of international research students in STEM disciplines are fully funded by their institution – or are remunerated for teaching support.

However, for many international students the offer of 'partial' scholarships will already be a deciding factor for seeking a programme. The need is not normally to offer full funding to cover all costs (i.e. living costs plus fees), but rather to help offset some of the costs for the student. These scholarships are essentially discounts on the course fee but must be presented and promoted to students as scholarships. Table 5.7 details an approach to scholarships for international students (mainly based on fee discounts) by the University of Leiden for their Master's programmes.

Table 5.7: Scholarships available from the University of Leiden for international students (from university website)

Platinum	Covers full tuition fee minus the home fee and €10,000 for living costs
Gold	Covers the tuition fee (minus the home fee)
Silver	Covers 75% of the tuition fee
Bronze	Covers 50% of the tuition fee
Ivory	Covers 25 % of the tuition fee

Such targeted scholarships in the identified priority country markets can have several possible effects

- They attract students to discover more about Estonia and programmes available;
- They might encourage students to apply for study in order to access scholarship funds;
- They will raise the profile of Estonia in the country;
- Through offering 'competitively' this sends the message of Estonian institutions seeking quality and wanting to be selective.

Scholarships might also be employed strategically to support national promotional campaigns aimed at profiling a country and its higher education opportunities. Good examples of how specific scholarship programmes do promote a country to great effect internationally for relatively modest investment include DAAD Germany, Fulbright from the USA, Australian Scholarships, and the Chevening programme from UK. However all countries that aspire to grow their international education activities offer some form of scholarships – Malaysia, Singapore, China and many others are good examples.

The welcoming perception that a well promoted national scholarship programme might create internationally will no doubt result in many more international students going to the provider country than might be funded through the scholarships (multiplier effect).

Immigration and employment

This is frequently the most difficult area encountered by higher education institutions seeking to recruit international students, particularly from outside EU/EEA countries. A major example of this was the downturn on recruitment of students to the USA following the changes to the visa regime after 9/11. However it is a reality that uncertainty continues to grow, given security and related concerns, but if a national strategy for international student recruitment is intended, an important partner in implementation must be the immigration and visa issuing authorities as well as Estonian Embassies in any prioritised countries.

A further concern, previously indicated is access to part-time employment; wages from this directly contribute to the living costs associated with international study. Is there legislation in Estonia that allows for part-time employment of non-EU/EEA nationals? Thus, just as for visas and immigration, the work permit issuing authorities need to be involved in any discussions in the formulation of international strategies.

Finally, if it is the intention of Arengufund to encourage international students to remain in the country for employment on completing their studies, are there systems in place to facilitate this? For example, visas issued for study in Australia are through a points based system that directly prioritises skill shortages in the economy. New Zealand, Singapore, UK and US all have different approaches, but they all share the objective of promoting high skilled migration.

Application processes and education systems

At some point, an Estonian institution recruiting international students will need to consider the appropriateness of the intending students' qualifications for admission to the programme. This can prove complex, although it is eased with repeat applications from the same country, through which experience will grow. The Estonian pages of ENIC-NARIC[110] and their advice service offer high-quality guidance in this respect.

What is clear in relation to international student recruitment is the importance of speed of response to queries and providing offers of a study place. The most successful universities at recruiting all seek to provide substantive replies to queries from intending students in less than five days.

International marketing and promotion

Any country seeking to become internationally active in higher education, particularly to recruit international students, must invest in a promotion and communications strategy. This could be tied into any national branding campaigns (and vice versa). There are large numbers of examples of both countries and institutions that have grown these and with varying degrees of success. The referenced websites provide more information on individual country approaches. These include:

[110] http://www.enic-naric.net/

Norway:	'Look Up – Study in Norway' - http://www.studyinnorway.no/
Sweden:	'Study in Sweden' - http://www.studyinsweden.se/
Finland:	'Discover Finalnd' - http://finland.cimo.fi/
Denmark;	'Study in Denmark' - http://studyindenmark.dk/
Singapore:	'Singapore Edcuation' - http://app.singaporeedu.gov.sg/asp/index.asp
New Zealand:	'New Zealand Educated' - http://www.newzealandeducated.com/
UK:	'Education UK' and the Prime Minister's Initiative (PMI) - http://www.educationuk.org/pls/hot_bc/page_pls_all_homepage

How might Estonia and Estonian institutions communicate the study opportunities available in an increasingly competitive international operating context? There are a number of possible approaches to communicating in the international education market. These include:

- Word of mouth: market research concerning international students clearly indicates that this is the most important single influence on a potential student. Friends, families and alumni are all very important.
- Recommendations of teachers or tutors: any that have had a good previous experience of working with Estonia are likely to pass on recommendations to their students.
- Estonian staff visits: Targeted visits to the priority countries by senior staff can have a good impact, especially if integrated with other Estonian events that might be given strong profile in the local media.
- Websites: these are extremely important as in whichever ways potential students might have heard of Estonia, they will check the national and institutional websites to understand better life in Estonia, the details of the programme they are keen to follow e.g. academic content, lectures, staff, admission requirements, assessment, likely fees and living costs, scholarships, potential for internships, part-time employment and all the other aspects of study and social life. Websites must be well visible and accessible in all the target markets.
- There is also a growing number of country specific commercial websites that host details (i.e. adverts) of foreign universities. An example is Uniguru in India, which has over five million hits a year. These websites have the advantage that they specifically target potential international students.
- Advertising: the use of simple adverts in local media in the target countries is not normally recommended unless associated with other events, activities or a focused campaign. However, an announcement of 'scholarships' can prove to be a 'bait' to attract students to explore further the range of opportunities in Estonia.
- Education agents: a growing number of universities employ education agents to assist in the recruitment of international students. These are normally paid a commission for each student recruited, based on a percentage of the fee. They promote the recruiting university in the country, advise students on programmes available and can provide support through helping to filter out students who would not meet admission requirements or not be likely to secure immigration/visa clearance. Agents are particularly important in East and South Asia and some countries in Africa.
- Education fairs and events: these have the main benefit that they provide high profile for a country or group of institutions at a particular time. The organisers of the fair will

have responsibility for promoting to all the target groups to ensure good attendance.

A study of international students in Estonia, recently commissioned by Estonian organisations and undertaken by i-graduate (UK), clearly indicated that the large majority of these students reported extremely positively about their study and living experiences in Estonia. In fact it seems that international students in Estonia report a much higher level of satisfaction international students in almost all other countries in the world.

Once an Estonian institution has decided upon the mix of programmes it wishes to offer in the international market, it is essential that a carefully developed communication's strategy (for the target countries) be grown. All the above needs to be informed by market research.

5.5 The international mobility of Estonian students

An internationally successful university will also have very diverse programmes to encourage their own students to undertake study opportunities in other countries, normally through exchanges. Many countries now recognise that encouraging their domestic students to have a significant international study experience is a vital step towards ensuring that the professionals on whom their economies will be dependent in the future are internationally aware and understand the need to be globally competitive. Denmark in particular prioritises this in its national strategy. US and UK institutions have recently placed increased emphasis on study abroad, as reflected in the earlier-mentioned initiative of Senator Paul Simon Act aiming to provide a large increase in federal investment in US students for study abroad.

The Erasmus programme has been successful at encouraging mobility within Europe and Estonia appears to have benefited well. 572 Estonians were reported to have travelled for study in Europe in 2007 through the Erasmus scheme.

Estonian students are also very involved in international degree level studies abroad. As already mentioned, the numbers of Estonians studying degree programmes internationally (about 4,000) indicate that they are already proportionately amongst the most mobile in Europe and the world. There are, for example, 675 Estonian students in UK. 100 of them are on postgraduate programmes. In terms of subject areas, they tend to be most concentrated with in management and business studies, followed by arts and humanities.

Arengufund might wish to learn more of the successes or otherwise of the mobility of Estonian students and perhaps make adjustments to the approach to improve effectiveness to enhance future impact. A number of questions should be pursued that include:

- Do they return to work in Estonia and if not, is their migration temporary or longer-term?
- What might the relationship be between effectiveness of the Estonian student experience and levels, subject of study and also programme duration and country of study destination?

Doctoral students probably merit separate consideration; it might be effective in terms of their research training and future career development to include a period in a partner institution in another country. Again this has proved effective in other countries.

We would like to underline again, as we have done already in Section 2, that the strong outward mobility of Estonian students stands in marked contrast to the volume of inbound student mobility. At the same time, efforts to attract more foreign students seem to bear fruit.

According to the most recent certified EUROSTAT data set, the number of foreign students in Estonia has risen to 2,200 in the academic year 2006/07, and their share of total enrolment stood at 3.2 percent. It appears likely that the government's target of 3,000 foreign students by 2014 (Higher Education Strategy 2006-2015) can be easily reached, or even surpassed.

5.6 Internationalisation, staff recruitment and skilled migration

Investment and support for the internationalisation of higher education is a priority of a number of governments. Their motives are varied but generally fall within a mix of reasons that include the need to grow a knowledge economy, enhancing the international impact of their universities, encouraging skilled immigration and also revenue generation (from fees and living costs). There are other reasons and these are discussed elsewhere.

Investing in the intenrationalisation of the higher education sector as a means to grow skilled migration is an increasingly important strategy for many countries – for example Australia, New Zealand and the USA. However, given the changing demographics in many countries and the emergence of skills shortages across some vital sectors in the national economy, the trend is growing in other countries too, including Singapore and the UK. As Jane Knight has indicated[111]:

> *"Higher education has gained more recognition as an important actor and is working in closer collaboration with immigration, industry, and the science and technology sectors to build an integrated strategy for attracting and retaining knowledge workers."*

A study[112] comparing the skilled migration initiatives of Canada and Australia provides a number of interesting conclusions. Both countries had about the same proportions of skilled migrants in 2001 and migrants comprised approximately half of all degree-qualified workers in the fields of engineering, information technology, and architecture/building. However, the approaches to skilled migration over the last ten or so years have differed. Canada has followed a human capital approach to selection, i.e. it has not been selective in terms of language and qualifications, whereas Australia, through its points based immigration system, was more selective, prioritising those skill areas for which there were identified gaps in the economy.

The net result has been that Canada has found it difficult to assimilate immigrants from outside the country groupings of South Africa, Australia, New Zealand, UK, Ireland, Northwestern Europe, and the US. The larger numbers of immigrants from China, the Philippines, India, Pakistan and Korea have found it difficult to secure appropriate positions.

In Australia a more interventionist approach to selective migration has been adopted that has included:

- Exclusion of economic category applicants at risk of poor employment outcomes;
- Expanding significantly pre-migration English language testing and mandatory
- credential assessment;
- Awarding bonus points for high-demand occupations.

[111] Jane Knight, "Internationalization: Unintended Consequences?"; *International Higher Education*, no. 54, Winter 2009.
[112] Lesleyanne Hawthorne, The *Impact of Economic Selection Policy on Labour Market Outcomes for Degree-Qualified Migrants in Canada and Australia*, Institute for Research on Public Policy (Canada) in *IRPP Choices*, vol. 14, no. 5 May 2008

International higher and vocational education students have been central to the Australian approach and as Hawthorne demonstrated, they have proved to be highly successful and important participants in the Australian skilled migration programmes: they finance their own efforts to meet domestic employers' demand, they are young and more easily acculturated, they have advanced English language ability and their qualifications are fully recognized (particularly as they are mainly Australian). In particular, employment outcomes for traditionally disadvantaged groups, including migrants from Eastern Europe, India, the Philippines and China have dramatically improved: they secure positions fast, achieve professional or managerial status, earn high salaries and use their professional credentials in work.

New Canadian policy initiatives are now underway to improve the transition of former international students to economic migration. New investment targets the need to address labour market barriers for skilled migrants, including language and bridging courses.

As has been discussed elsewhere high levels of English language proficiency (ELP) have become essential both for study as well for future employment. A further recent series of studies in Australia[113][114] has examined the influence of ELP on workplace readiness and employment outcomes for international students and graduates who seek to work in Australia. The authors identified that while ELP is a major factor influencing access to skilled employment this is not the only or principal issue, as an employer's first priority is on graduates with strong profession-specific skills. Following this, perceptions of the 'well-roundedness' of graduates are considered to be as important as ELP. The 'well-roundedness' sought by employers includes graduates' personal characteristics and attributes, the diversity of their experiences and skills, as well as their 'cultural fit' within the workplace. The authors suggested that this might be addressed in education institutions through policies and practices that support integrated approaches for enhancing ELP and workplace readiness, as well as increasing international students' awareness of the value of the experiences and skills they can develop outside of their studies, for example, in the course of casual employment in Australia.

Researcher mobility

As was discussed earlier, the objectives of growing leading research and encouraging skilled migration come together through the recruitment of international graduate students, postdoctoral researchers and junior faculty. The tremendous contribution that such groups can make was illustrated by the US study on patents described. For these reasons many countries now seek to attract high quality researchers to meet their growing and increasingly complex research needs, particularly to provide for scarce skills. This is also extremely important if a university wishes to increase its international competitiveness for as a study by van Raan[115] has indicated the global research impact of a university is extremely dependent on its ability to attract leading global talent. His study showed that after about the 250th rank in the global university 'league tables' (ARWU and THE-QS) for a specified discipline, research impact falls sharply. This, he concluded, was primarily due to constraints of

[113] Sophie Arkoudis et al. , *The impact of English language proficiency and workplace readiness on the employment outcomes of tertiary international students*, University of Melbourne, Centre for the Study of Higher Education, 2009.

[115] Anthony F.J. van Raan, *Size, Rankings and Bibliometrics*, Paper presented at the joint OECD/Nordic Universities Association conference, Reykjavik, June 4-7, 2008

recruiting and retaining international quality staff in the discipline. Thus any university seeking to make a global top 250 ranking must invest significantly to attract leading researchers.

In the US, recruiting doctoral level research students has proved vital; high skilled foreign-born workers make up a large part of the science and engineering labour force and in 2003 more than one-third of US science and engineering doctorate holders were assessed to be foreign born. The large impact by 'study migrants' on subsequent US employment and innovation is telling: more than 60 percent of migrants who obtained US doctorates were still working in the US five years after completing their programmes. These stay rates varied according to subject, for example it was found to be 70 percent for computer science and electronic engineering doctorate holders. The enhanced relative effectiveness of foreign-born researchers, in terms of patents produced, was discussed earlier.

In a recent study of migration of staff to and from the UK, Bekhradnia and Sastry[116] identified that a great majority of the movement involved junior postdoctoral staff and that this had been very positive for the UK. Their paper also identified that many researchers maintained the research links they established earlier in their careers, often leading to future research and other forms of university partnerships. A recent US (National Science Foundation) study by Mark C. Regets[117] showed a positive correlation between the number of US doctorates received by those born in a foreign country and the percentage of that country's internationally co-authored articles with the US.

Doctoral students: The global competition for doctoral students continues to accelerate; these are now seen as the vital 'work horses' of university research. Currently the global recruitment of international research students is dominated by the US and the UK who together probably account for nearly half of international research students[118]. However many other countries and individual institutions are seeking new ways to attract this group, with many countries offering full grants to cover fees and living costs.

In terms of leading source countries for research students, comparing Germany, UK, Australia and US, the major common source country is China; Chinese research students in these countries alone probably total over 50,000. US universities achieve their greatest successes in recruitment from India, Korea, Taiwan as well as China. The UK and Germany are also very successful at recruiting from within Europe; for the former East European recruitment is strong. In addition to Europe as a vital source, the UK also attracts significant numbers of researchers from India, Malaysia, US and Canada.

Staff Exchanges: A number of surveys of research active universities and their international partnerships have found that university staff attach great importance to exchanges both to enhance research partnerships and for the development of the individual concerned. Most exchanges tend to relate to growing and supporting research partnerships, while some develop teaching partnerships. However the problem is that funds rarely exist to support longer periods of exchange. Visits are typically brief stays. Nevertheless, it is clear that the experiences gained and shared will frequently result in longer-term relationships as they facilitate the formation of extended networks that might also benefit student mobility, particularly at the postgraduate and research levels.

The existence of some form of partnership agreement between institutions (see below) is frequently the main support means to promote staff exchanges. In some cases, language can

[116] Bahram Bekhradnia, Thomas Sastry, *Migration of Academic Staff to and from the UK*, HEPI: 2005.
[117] Mark C. Regets, "Research Issues in the International Migration of Highly Skilled Workers: A Perspective with Data from the United States", National Science Foundation Working Paper SRS 07-203, June 2007.
[118] *Neil Kemp et al, The UK's Competitive Advantage (2008, see above)*

be a barrier to participation in exchange programmes, particularly where the receiving institution does not offer academic programmes in English.

Source countries for research staff: the importance of the main Asian nations for recruitment to the US is clear, particularly China, India, Korea and Taiwan. Germany, UK and Netherlands also recruit from China and India, including for postdoctoral researchers. However of notice in some European countries and to some extent the US has been the strong growth in migration from East Europe, particularly for research and academic positions in the STEM subject areas.

5.7 International partnerships and other forms of cooperation

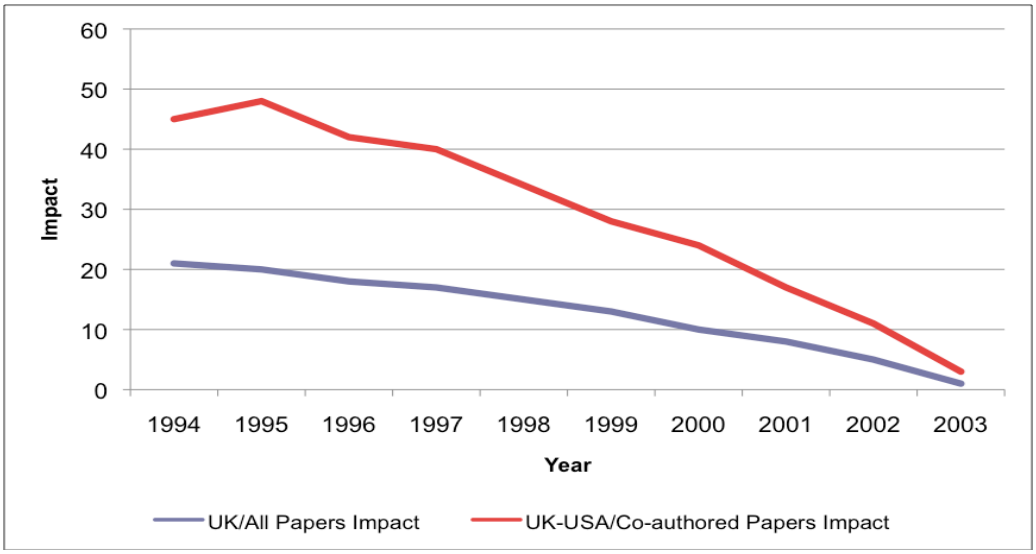
Research partnerships

As was indicated in Section 3, a key attribute of an internationally competitive university is its ability to generate world-class research. However competencies and leadership in research also directly relate to an institution's ability to attract high quality international students, particularly postgraduates. Frequently Masters and other postgraduate programmes are developed as a result of the university and its staff's ability in a particular research field.

A further aspect of world-class research, particularly in the STEM subjects, is the need to cooperate and grow international partnerships. Most OECD countries invest significantly to develop international research partnerships as part of a national strategy to expand their research abilities in identified priority areas. There are few publications that detail the relative impact of research cooperation and suggest methodologies that might facilitate evaluation. However, a study undertaken by Roberts in the UK that considered research partnerships between UK and US universities very conclusively demonstrated the high added value of international cooperation compared to research that is only domestic.

The Roberts study indicated that benefits were identified to be two-way. Figure 5.5 is taken from Robert's report. This indicates that the impact of UK-US co-authored papers is significantly greater than for those for the UK alone. The authors assessed impact through an analysis of citations per paper in internationally refereed journals over a number of years. The importance of research partnerships with the US was also emphasised as nearly a third of the UK's highly cited papers in the period 1997-2001 had a co-author from the US.

Figure 5.5: Impact of UK and US research cooperation compared to all research undertaken, based on citations.



Source: Roberts[119] (2005)
NB: The decreasing difference to 2003 in Figure 5.5 is due to the fact that more recent publications have had less time in the public domain to be cited.

The impact on US research output arising from partnerships with UK researchers was correspondingly assessed through a study of papers in the physical and biological sciences produced by leading USA institutions. As Roberts reported:

> *"This showed conclusively that the universities doing the most high impact collaborative work with the UK are the great research universities of the US and also that the papers with a UK co-author had impact factors up to four times higher than for the rest of their output"'*

The reason for dwelling on US partnerships is that the US is the research partner of choice for many countries, given that it has the world's largest research infrastructure and is the best resourced – the total US research and development investments from all sources is probably greater than the total expenditures of Japan and the EU nations together. US federal government investments in research alone in 2008 amounted to about US$56 billion of which roughly US$33 billion went to US colleges and universities. The US also actively seeks out and invests in research partnerships – the National Institute of Health alone invested in 2008 in projects valued at over US$ 137 million through direct contracts with EU universities. A significantly larger sum was employed to support EU-US cooperation through research projects led by US institutions. US universities are thus potentially very important research partners, both due to their ability to secure federal budgets as well as their own considerable financial resources.

While US research partnerships are important, the last ten years or so have seen a very strong growth in partnerships within Europe, both supported through various EU funding instruments as well as investments from the national research agencies in each country. The European Research Council (ERC) as well as the European Commission's research framework programmes provide support for a mix of research cooperation initiatives. ERC awards are to complement the investments from individual national research agencies. It is

[119] Sir Gareth Roberts, *International Partnerships of Research Excellence: UK-USA Academic Collaboration*, University of Oxford: Wolfson College 2005.

clear from an assessment of research cooperation involving universities in a selection of European countries that securing EU funding typically involves some form of initial investment from the university's own budget. This facilitates the identification of potential international partners to lead to development of joint proposals both to secure funding from respective national agencies and also form the ERC.

While individual researchers in STEM subjects in particular will typically have many international links and will use communications technology to keep in touch with their foreign co-researchers, some form of core investment specific for international cooperation is essential. Here are some examples:

- Sweden: the national research council provides support as does the STINT Foundation (and a host of further foundations). The latter has supported over 200 international Swedish research partnerships over the last fifteen years.
- Finland: the Finnish Funding Agency for Technology and Innovation (Tekes) has an office in Washington for growing US-Finnish research cooperation. However a recent study of Finnish international research competitiveness (October 2009) concluded that Finnish research and innovation lacked an international dimension, trailed behind other Nordic countries and had failed to attract foreign researchers or knowledge-intensive overseas businesses and their research facilities. The recommendations included strong incentives to increase the mobility of researchers and strengthen international partnerships in universities and research institutions.
- The US National Science Foundation has established offices in Beijing, Delhi and Paris (for the EU) in order to facilitate new research partnerships with those countries.
- The UK has offices of the national research agencies in Washington, Delhi and Beijing. It has allocated funding specifically to grow new research partnerships, including with Russia, India and China. Other funding supports cooperation in Europe and new resources are being considered for supporting new initiatives in the US.

International delivery of programmes: transnational education (TNE) and flexible and distributed learning (FDL)

A proportion of those universities that might be described as 'internationally competitive' are directly involved in different approaches for the international delivery of their programmes through some form of transnational arrangement. While most of the international publicity has been associated with the growth of a few 'big name' international campuses, for example Cornell-Wiell Medical School in Qatar, Sorbonne in Abu Dhabi, Carnegie Mellon in Australia and Nottingham in Malaysia and China, by far the largest numbers of international students enrolled on TNE programmes (for explanation and definitions see the QAA website[120]) follow those delivered through some form of partnership, often also referred to as collaborative delivery.

These programmes are already having a major impact on the delivery of higher education to international students but no data is as yet collected systematically, with the exception of Australian and UK universities. About 230,000 international students are following UK university programmes in their own country delivered through some form of distance learning or flexible delivery (including fully on-line). Australian, German, French, Dutch and US

[120] For definitions see www.qaa.ac.uk

universities are all similarly active. TNE is also growing into a global business with some of the large US for-profit private universities investing strongly to secure international market share.

A further consideration concerns the variety of innovations that are now growing for the delivery of these programmes, both on campuses and through distance and blended learning. Flexible and distributed learning (FDL) has become the generic name applied to all programmes of provision that lead to a degree, or to specific credit toward a degree, of an awarding institution delivered and/or supported through means which generally do not require the student to attend particular classes or events at particular times and/or particular locations. The delivery of these programmes may be paper-based, web-based, or delivered through other media that include audio or video links or recordings. Many FDL programmes employ a mixture of methods for delivery and some might be augmented and/or integrated with face-to-face teaching. This latter might involve an in-country partner and also 'flying tutors'.

While cost is a major consideration in terms of influencing a student to study for a foreign qualification in their home country, this is not the only reason. For example, the majority of postgraduate students following applied Master's programmes in their home country are enrolled part-time. This allows the students flexibility to study whilst still in employment and also in a way that fits with their family commitments. Many of the foreign delivered programmes also include a period of study at the home university campus; some authors have indicated that while the part of the programme delivered in the foreign country might not meet the full costs of delivery, the periods on the home campus, in addition to providing a quality experience for the student, help to ensure some 'surplus' revenue was achieved.

There is an inevitability that fully on-line and other forms of flexible delivery will grow. Currently, in most programmes delivered internationally and involving flexible delivery, a mix of approaches to delivery is likely to be employed: materials in print and CD/DVD formats, media (audio and video links) or some form of e-delivery. Some face-to-face teaching might back this up. The proportions of international collaborative programmes delivered through e-delivery is increasing as the technologies and materials become better understood and accepted.

On-line delivery does offer tremendous potential both for global outreach and economies of scale. Another interesting development has been the growth of open content from some world-leading universities. This trend is likely to increase. As an example of impact, the UK's Open University has already received several million hits on its i-univeristy link available on i-tunes (iTunes U)[121]. However, while this is excellent for the university's profile, it has yet to translate into direct business success!

[121] http://www.open.ac.uk/itunes/

Examples

- *Welingkar Institute of Management Development & Research, Mumbai has a twinning programme in bioinformatics with Nottingham Trent University (UK). The MS. Bioinformatics is a one-year programme with 90 credit points offered at Welingkar and 90 at Nottingham Trent. The final award is ajoint degree from both the institutions*
- *Kaplan Singapore (a branch of the Washington Post Group) and Northeastern University (USA) offers a BSc in finance in Singapore. The programme is flexible and involves evening and weekend lectures.*
- *University of Leeds and Birla Institute of Technology, Ranchi offer a BEng linked with an MEng in various engineering disciplines The major advantage is that in 4 years the student will earn both a BEng from BIT and an MEng from Leeds*
- *Bhartiya Vidya Bhawan is a study centre of Marshall University. US, MBA courses offered in Bhartiya Vidya Bhawan are validated and designed by Marshall University*
- *ITM, Gurgaon and the University of Warwick offer the first year of Warwick's BEng and MEng degrees in Electronic & Communication Engineering at ITM, India. Warwick is responsible for all academic aspects of collaboration. The final year's are completed on the Warwick campus*

Institutional partnerships and links

Considerable emphasis is now being placed on the growth of partnerships between institutions and those institutions that have achieved the most success internationally tend to have a good variety of partnerships and collaborators. More recently national strategies for higher education internationalisation have stressed the importance of partnerships e.g. the recent strong federal drive in the US to grow new forms of partnerships with China and India, German initiatives through DAAD, a number of French initiatives (e.g. with US and India) and the new UK PMI2 Partnerships strategy[122]. EU programmes have also proved successful for the growth of new forms of partnership; the Erasmus Mundus initiative has introduced fascinating new opportunities to grow three way or more institutional partnerships.

While international partnerships between universities come in a plethora of combinations and arrangements, to simplify they probably can be described as falling into three categories described:

- Ad hoc: Typically based on partnerships of individual researchers and other staff, these are not generally institution-wide and focus on one or a few activities, for example research cooperation, teaching collaboration or student exchange.
- Institutional international 'Memoranda of Understanding' (MoUs) and other formal agreements: most universities operating internationally tend to 'collect' MoUs, frequently following visits by senior managers in either direction, i.e. Rectors or Presidents. These can be extremely important if formally backed by activities and funding. However many remain empty and locked in a cupboard.
- International consortia: there are a growing number of formal international consortia of universities and many of the globally leading universities belong to these.

Examples of the latter include:

[122] http://www.britishcouncil.org/learning-pmi2-connect.htm

- the ***World University Network (WUN,*** a partnership of 15 research-led universities from Europe, North America, South East Asia, Australia and Africa (http://www.wun.ac.uk/aboutus.php).
- ***Universitas 21 (U21),*** an international network of 21 leading research-intensive universities in thirteen countries (including NU Singapore, Fudan, Edinburgh, Delhi, Nottingham, Virginia, Lund, Melbourne and Waseda). Universitat 21 have developed an on-line graduate school, U21 Global, based in Singapore; however this seems to be experiencing some difficulties, due to low recruitment.
- the ***League of European Research Universities (LERU)***. The member universities are Cambridge, Edinburgh, Geneva, Heidelberg, Helsinki, Karolinska Institutet, Leuven, Milan, Munich, Oxford, Strasbourg, Amsterdam, Lund, University College, London, University Paris-Sud 11, Utrecht and Zurich Universities.
- the ***International Network of Universities (INU)*** comprises a group of 10 universities from 8 different countries including Flinders, Hiroshima, Leicester, La Trobe, Malmo, Ritsumeikan, Parahyangan and James Madison universities.
- ***the Coimbra Group:*** this is a European network of research universities. Tartu University is already a member;
- ***UNICA*** is a network of universities from the capitals of Europe comprising 42 universities including Tallinn University of Technology;
- Other consortia include the Academic Consortium 21 (AC 21); World Cities University Network; International Network of Universities; and the International Alliance of Leading Education Institutions.

While some consortia have proved successful in establishing multilateral relationships, for teaching, research, staff development and other activities, feedback indicates that many consortia members tend to employ these as a means for growing networks of bilateral rather than multilateral partnerships. Not all of such networks function problem-free.

It would seem that Estonian universities, while having membership in some European consortia, have only limited involvement with global university networks. Membership might offer opportunities to access some wider global networks and potential partners.

Section 6

Case studies

Throughout this report, and particularly in section 3, reference has been made to successful strategies at a national, state or institutional level to raise the quality of a single institution, or a whole higher education system, to an internationally competitive level. In addition to this, we are here presenting four 'case studies', of universities or higher education systems which have, in a relatively short period of time, achieved an internationally competitive level of excellence.

6.1 Country case: Singapore

Background

> *"Our vision, in shorthand notation, is to become the Boston of the East. Boston is not just MIT or Harvard. The greater Boston area boasts of over 200 universities, colleges, research institutes and thousands of companies. It is a focal point of creative energy; a hive of intellectual, research, commercial and social activity. We want to create an oasis of talent in Singapore: a knowledge hub, an ''ideas-exchange'', a confluence of people and idea streams, an incubator for inspiration."*

An excellent analysis of the relationship between international education policies and economic development is provided by Kris Olds[123]. In this he outlines how Singapore prioritised education above all other objectives in order to drive economic development. Education was identified from the 1980s as the key service sector to add value to the economy, generate revenue and support exports. It provided a means towards economic diversification that might ameliorate the risks associated with global economic fluctuations. As part of this the 'World Class University' project has been grown since 2000, and now the 'Global Schoolhouse' initiative is in place with the objective of integrated education services conceived as supporting Singapore to become the 'Global Hub' of knowledge based enterprises. The important linkages that Singapore has already in place to draw together both service and manufacturing industries and the education sector has proved to be a vital step in the education initiatives. The Singaporean policy works at a number of levels:

- Investment to grow a strong quality higher education system for both domestic and international students;
- Attraction of high quality international students, with funding policies in place that would result in many remaining to work in Singapore on completing their programmes;
- Establishment of research of international repute in Singaporean universities that is based on their own centres and departments, integration with other national research and partnerships with world leading research groups;
- Investment in partnerships with the world's leading universities.

[123] Kris Olds, '"Global Assemblage: Singapore, Foreign Universities and the Construction of a ''Global Education Hub''": *World Development*, vol. 35, no. 6, pp. 959–975, 2007

Olds summarises the overall long-term objectives as follows:

> *"The key idea is the creation of a virtuous circle: draw in the "best universities" with global talent; this talent then creates knowledge and knowledgeable subjects; these knowledgeable subjects, through their actions and networks, then create the professional jobs that drive a vibrant local KBE with profitable regional links."*

However, as Olds further comments, next to these undoubted successes at growing education-industry linkages and towards creating a 'Boston of the East', there are also concerns, particularly associated with investments to encourage foreign universities establishing some form of presence in Singapore. To date most have been focused on the development of undergraduate and teaching programmes, with only modest success for research cooperation. The other concerns that will impact on international partnerships are the nature of academic freedom in Singapore and also the outcomes of the withdrawal of Singapore government subsidies.

International students and Singapore

For attracting more international students, the Government of Singapore considered the high competencies in the English language and their international reputation for quality would be a major attraction. The government has set a target of attracting 150,000 foreign students by 2015, which it claimed would not only create 22,000 jobs, but also boost the education sector's GDP contribution from 1.9 percent (US$1.8 billion) to five percent. According to the Singapore Economic Development Board (EDB), Singapore is on track to reaching the target and international student enrolments were reported to have risen to 80,000 in 2006 (note that these data include school level enrolments). Students are mainly from Asia (particularly from the Chinese Diaspora), but also from Europe and Africa. Detailed disaggregated data is not published.

Fees for international students at the main universities are set at about S$25,000 per annum for a laboratory-based programme. However, this sum is reduced to about S$10,000 per annum if the student signs a bond to remain for work in Singapore for a minimum of three years after graduation. For programmes in the polytechnics, the fees are about S$15,000 and the reduced level is about S$3,000. The Ministry of Education offers some national scholarships for international students. These are awarded on a merit basis.

A number of foreign universities have developed Asian campuses in Singapore. Universities involved include the University of Chicago, the University of Nevada, INSEAD and the New York University Tisch School of the Arts. However not all foreign operations have resulted in success, and both Johns Hopkins University (USA) and University of New South Wales (Australia) have withdrawn form their Singapore operations[124].

A wide selection of leading international universities has grown partnerships with the national universities in Singapore. These include: MIT, Peking University, Technical University of Denmark, Kings College, London, IIT Bombay, Australian National University and *Ecole Supérieure d'Electricité*, France. (see http://www.singaporeedu.gov.sg/htm/stu/stu0107.htm)

In 2003, Singapore Education, a multi-government agency, was established, to promote Singapore as a premier education hub and advise international students on studying in

[124] "UNSW Singapore campus doomed to fail", *The Australian*, 27 June, 2007.
"Australian universities thriving in Singapore", *Straits Times*, 17 July 2008.

Singapore. This initiative is led by the Singapore Economic Development Board and supported by the Singapore Tourism Board, SPRING Singapore, International Enterprise Singapore and the Ministry of Education. (see: http://app.singaporeedu.gov.sg/asp/index.asp)

There is a thriving private higher education sector in Singapore. The private institutions tend to have programmes orientated to business needs and many have partnerships with foreign universities to award their degrees in Singapore. Thus, for example, the Management Development Institute of Singapore offers MBA programmes in partnership with several foreign providers including the Universities of Bradford and Wales (UK) and Southern Cross and Edith Cowan Universities (Australia). The large US education company, Kaplan, also offers a number of degree programmes in Singapore in partnerships with foreign universities.

6.2 National University of Singapore

While the National University of Singapore (NUS) was only formally established as an autonomous university in 1962, it had its foundation as a small medical college in 1905. Over the initial years of its development, there were considerable international partnerships grown supported by international technical assistance (Colombo Plan). This helped support the growth of the teaching (and research) programmes.

The university currently has 14 faculties and schools across its three campus locations in Singapore, plus three globally leading research centres and twenty-two university-level centres. It has very close affiliations with a number of other national research centres in Singapore and with research institutions in other countries. Research activities are strategic and NUS has in particular grown its research capability in engineering, life sciences and biomedicine, social sciences and natural sciences. NUS' philosophy has been to integrate its core competencies of education and research with an entrepreneurial dimension of benefit to the community.

It has also established other international colleges in Bangalore, Stockholm, Silicon Valley and Shanghai.

NUS has become a top global university and is ranked ahead of such internationally notable universities as UCLA and Berkeley, Melbourne, Trinity College, Dublin and Amsterdam. In 2009, it was ranked overall as 30th globally in the THE-QS ranking, and 10th in Asia. For technology and computing, it was ranked 14th and for biosciences 20th in the world[125]. It has over 33,000 students enrolled of whom about 75 percent are following undergraduate programmes. International students comprise some 25 percent of the undergraduate intake and are the majority on the postgraduate programmes. About 1,300 incoming international exchange students were reported in 2008.

According to NUS, the university has about 175 partnerships with foreign universities from among the global 500. It is also actively involved in international academic and research networks including the Association of Pacific Rim Universities (APRU) and International Alliance of Research Universities (IARU). The university has a total of about 2,500 faculty and of these about half are foreign by birth. Among very recent international collaboration developments, NUS reports the following:

- NUS has concluded an agreement with the European Aeronautic Defence and Space Company (EADS) to facilitate research collaboration;

[125] NUS ranked somewhat lower in ARWU, but also there remains in the top 200 in the world.

- Asia's first research centre in palliative care has been set up, as a partnership between the Duke-NUS Medical School and the Lien Foundation;
- New interdisciplinary postgraduate programmes have been established. Some are offered through an alliance with MIT, for example in computation and systems biology, and advanced materials for micro- and nano-systems. The programmes lead to a dual degree from NUS and MIT.

6.3 University of Warwick

The University of Warwick was one of the 'new wave' of universities that were established in the United Kingdom in the 1960s. At the outset, it offered only few postgraduate programmes and it had particular strengths only in mathematics and related research. However, from these modest beginning, it has grown to become a internationally competitive university, which in the 2009 THE-QS rankings came out as no. 58 globally[126].

It offers a wide range of teaching programmes and in 2000 inaugurated its new Medical School. It has a strong research drive and is probably most famous for its business and industry links - the very commercial approach resulted in it earning the nickname: "Warwick University Limited". The Warwick Business School offers a broad range of programmes including one of the most prestigious international Executive MBA programmes; it is AMBA-accredited.

The student population is about 16,700, with around a third being postgraduates. 25 percent of the student body is international and over 114 countries are represented on the campus. The University boasts 29 academic departments and over 40 specialist research centres and institutes. It employs 1,600 academic staff and 845 research staff.

Its original expertise in mathematics and related research has expanded into many other areas, and this is being used to grow greater inter-disciplinarity across the university. Among its present fields of excellence are environmental science, manufacturing sciences, history, mathematics and statistics, economics, classics, business and management, theatre and creative writing.

Warwick is one of the few UK universities which have reached its target for the proportion of students admitted from the state school sector (86%). Remarkably, it has achieved this with no compromise to quality as the *Sunday Times* reported in 2008:

> *"In barely forty years, Warwick has established itself as a leading alternative to Oxford and Cambridge. It recruits some of the brightest students who are taught by staff often working at the cutting edge of their subjects."*

From the first day, Warwick sought to grow its business and industry links. The University has established a number of stand-alone units to manage and extract commercial value from its research activities including the Warwick Manufacturing Group and the University of Warwick Science Park. The latter now provides a base to 85 high-tech companies. As a result of these activities, Warwick is the only UK university to generate more income through commercial activities than it receives from government grants. Its total turnover is about €400 million per annum and. Within this total, research is the greatest source of income, followed by fees from international students.

Warwick actively seeks to grow its international outreach, including delivering its

[126] It was ranked considerably less well in ARWU, but also there it belonged to the top 200.

postgraduate programmes internationally (see also earlier examples). Warwick is a member of the Academic Consortium 21 (AC21) of leading international research universities. In 2004 the university was approached by the Singapore government inviting Warwick to open a 10,000-student campus in Singapore; however due to concerns about academic freedom, costs and freedom of speech the initiative was ultimately abandoned.

The university has now launched a new growth strategy entitled Warwick Vision 2015 (see http://www2.warwick.ac.uk/about/vision2015/international/). As part of this, it intends to set up an international quarter on the Warwick campus to host overseas research universities and provide a physical base at Warwick. The intention is to build up joint research, while at the same time offering extended opportunities to both staff and students.

6.4 University of California at San Diego The UC San Diego (UCSD: http://www.ucsd.edu/) was established in 1960. It is one of eleven campuses of the University of California and is a public sector state institution, although, like many US public universities, it generates its revenue from a mix of sources. Among them are government grants; student tuition fees; contracted research (both from government and the private sector); services to clients, such as specialist teaching programmes; endowments and other investment. It has already achieved strong international recognition through its research and teaching and was ranked, in 2009, 14th in ARWU.[127]

The university employs 7,566 faculty members including eight Nobel Laureates and it was a major contributor to the research that underpinned Al Gore's Nobel Prize in 2007. UCSD offers a very comprehensive mix of programmes for its 34,000 students of whom about 30 percent are postgraduate; 30 percent of the student body are international. The university offers over 50 Masters degrees and a similar number of Doctoral programmes.

The US system of public universities charges tuition fees to students at differential rates for 'in-state' (i.e. for Californian students) and 'out of state' students. International students are charged the 'out of state' rate. The current respective fee levels for UC San Diego for undergraduates are US$8,000 'in-state' and US$23,000 'out of state'.

A number of world-class research centres are part of UC San Diego, either within the university 'proper' or as autonomous centres; these support the UCSD's very vibrant research base. Its total research expenditures for 2007-08 were a very impressive US$798 million. The research centres include the UC San Diego Medical Center, several regional research centers, such as the Salk Institute and The Scripps Research Institute, the San Diego Supercomputer Center, the California Institute for Telecommunications and Information Technology, the Jacobs School of Engineering, the School of International Relations& Pacific Studies, the Institute on Global Conflict and Cooperation, the Center for US-Mexican Studies and the Rady School of Management.

There is a strong relationship with local business and industry and it is suggested that some 200 San Diego companies have been founded by UCSD faculty and alumni, and over 40 percent of the people employed in the San Diego biotechnology industry are estimated to be working in spin-off businesses originating from UC San Diego.

A further interesting operation offered through UC San Diego is the 'UCSD Extension Programme': this is a continuing education and public initiative led by the university for the

[127] 76th in THE-SQ

local community. Approximately 50,000 are enrolled annually on courses offered during evenings and weekends. UC San Diego has set a target to encourage one third of all enrolled undergraduates to undertake a Study Abroad programme, up from the about sixteen percent currently involved. There are a number of funding possibilities for students seeking these opportunities.

6.5 Maastricht University

Maastricht University (www.maastrichtuniversity.nl) is one of the youngest universities in the Netherlands, and had something of a curious start. In the late 1960s, the decline of the mining industry in the region sparked off ideas for 'regional development' measures, one of which was the creation of a university. At the time, there was also a perceived lack of (capacity for the education of) medical doctors in the Netherlands. Out of this, preparations were undertaken for the start of a university with a strong medical focus. But by the early 70s, the shortage of medical doctors had been overcome and the establishment of the institution was in doubt. After a slightly 'illegal' start, the university got its legal basis in late 1975 and officially opened in early 1976. Medicine was indeed one of the cornerstones, and has remained it to this very day.

In the 30+ years until today, the institution has undergone a tremendous development. This was due to an initially strong government support, but, as time went on, more and more to the conscious decision to differ from the Dutch university model of the time.

Internationalisation

Among other things, it was decided that Maastricht would become a 'European' rather than solely Dutch university, in terms of student enrolment, staff hired and the focus of education and research. What helped somewhat in the implementation of this plan was the location of Masstricht, bordering both on Germany and on Belgium. Through consistently pursuing this goal, Maastricht University advanced in big leaps. Of its total enrolment of about 13,000 students, 39 percent are from outside Belgium. Of recent new entrants (2008), even 47 percent are non-Dutch. This is mirrored by the composition of the faculty (academic staff), almost one third of whom are from outside the Netherlands. To be credible in its European aspirations, the university soon began to orient its teaching programmes towards European themes, such as European law and European studies. The university also became a European, if not global pioneer in the offer of English-medium education. Today, almost its entire range of postgraduate programmes is delivered in English. In undergraduate programmes, the share is about 50 percent. From what we know, the university has also changed its administrative functioning largely on the English language, and, a few year ago, its official name was changed from "Universiteit Maastricht" to Maastricht University.

Growth strategy, interdisciplinarity and applied science

Over the years, the institution followed a consistent growth strategy. Originally a medical school, it soon expanded into other disciplines. A faculty of law was created in 1982 and a faculty of economics two years later. In the 1990s, the faculties for arts and culture, and for psychology, were set up. Hand in glove with growth went an interdisciplinary outlook, focusing on non-traditional academic areas, such as knowledge engineering or molecular life sciences.

In the present century, the institution started to establish “schools” and “colleges”, originally fully outside of the traditional faculty structure. Among them were the “University College Maastricht”, one of the first liberal arts colleges in the country, or the “Maastricht University School of Business and Economics”, one of the few business schools in the world accredited by EQUIS, AACSB and AMBA. Created with a distinctly global outlook in 2004 was the “Maastricht University School of Governance”, which has in a short time gained wide recognition for its work on global governance and international public policy. Of note is also the very new “Maastricht Centre for Entrepreneurship”.

New educational approaches

Maastricht University is by now a very respectable research university by international comparison, as its place in international ranking displays. It was on rank 116 in THE-QS in 2009 (111 in 2008), and among the top 20 world-wide in the particular area of clinical medicine. It comes out somewhat weaker in ARWU, though. The research effort is underpinned by modern graduate schools, amongst other things. On top of these successes, the university has developed a unique model in teaching and learning. While leading research institutions are usually also advanced in teaching (or anyway produce good graduates), they have been rarely known to develop entirely new approaches in the education sphere. This makes Maastricht a rare example.

“Problem based learning” is the trademark of education in Maastricht. It is a variant of student-centred learning, which today is a widespread educational theory (though not always applied in practice). But the fact that it is today commonplace distinguishes Maastricht rather than devaluates it, for Maastricht’s educational approach was problem-based learning almost right from its foundation onwards. Problem-based learning wants to ‘produce’ the independent, problem-solving and enterprising student. Under the guidance of a tutor (academic staff), students analyse a problem in group work and try to find the best solution. Problem-based learning also encompasses skills training sessions, amongst other things.

Funding

As a continental European public university, Maastricht University is not swimming in money. But the still relatively high contributions of the Dutch government provide a solid basis, by continental European comparison. On top of this, the university is successful in attracting research grants (from private and public sources) and it derives income from tuition fees.

Tuition fees can go up to well over €10,000 a year, in the graduate segment, especially for non-EU/EEA students. The university counterbalances its fees policy with a ‘scholarship segment’ for the three percent of top-performing students, who will receive a 100% tuition fee waiver in the following year – a new and inventive form of scholarship.

On top of all of this, Maastricht University has had the good luck of having enlightened and determined academic leaders. An example is the current President of the Board, Jo Ritzen, the Netherlands’ dynamic former minister of education and a former Vice-President of the World Bank. Just as Ritzen was a motor of radical reform in his days as an education minister, he became a driving force for Maastricht Univeristy. But the effect that he and other leaders in the institution produce is also due to a modern system of higher education governance in the Netherlands, which combines autonomy with external representation on the governing bodies of universities, and other advanced characteristics.

Reflections on the case studies

Meaningful comparisons and conclusions based on the above brief studies are not possible, except at a very cursory level. Much more in-depth studies, involving institutional site visits, would be necessary for this purpose. However, referring to the criteria set out in Section 3 it is possible to provide a few brief observations concerning key factors that might have contributed to each institution's international success. We repeat the criteria previously discussed:

- Research quality, with some 'blue sky' and strong international cooperation;
- Abilities across all disciplines:
- Strong leadership: with a clear and shared vision for the institution;
- Institutional autonomy:
- Teaching quality and ability to attract quality students
- International links and internationalisation
- Mixed funding – no over-dependence on one source

What is clear from the universities presented is that each had a good mix of the above criteria but one stands out and is common to all - strong leadership and a clear vision. In the case of NUS, this came initially from government, which was keen to enhance the 'high value added' national strategies of Singapore. Warwick prioritised from the 1970s onwards becoming an 'entrepreneurial university' with a strong international outreach. San Diego grew its research mission, developing world-renowned research institutes. Maastricht opted for an international orientation at a time when this was not common.

These observations would indicate that with a clear and shared vision, defining clear objectives and key performance indicators to assess progress along the route to change, is beneficial. However, the comments from a number of researchers clearly demonstrate that these indicators need to be internally identified and agreed.

High levels of autonomy have also been important for each one. Although there has been criticism voiced concerning close government involvement in NUS, it is apparent that there are trends towards increasing autonomy.

Warwick has probably been the most successful of the four in terms of growing international graduate programmes, including delivered internationally. Maastricht also attracts a large proportion of international students to its campus, and increasingly in the postgraduate segment, too.

Research and international research cooperation would seem to have been a major priority for each. Warwick has built a number of specialist centres and interdisciplinary programmes, some with foundations deriving from the university's early mathematical focus. Singapore has an excellent tradition of cooperation with some of the globally leading institutions, initially for staff and student exchanges but more recently for high quality research.

While none of the above criteria provide a benchmark for measuring 'world class', a consideration of the commitment and investment of an institution within each of seven topics identified, might provide a means for prioritising action and investment.

Section 7

Conclusions and some implications for Estonia

7.1 The future of higher education around the world

Enrolment rates in higher education

Gross Enrolment Rates[128] (GERs) across the major OECD countries appear to have stabilised at between 40 and 50 percent. However, the rates of most lower and middle-income countries are continuing to expand. For example China, with current GREs of about 20 percent plans to grow enrolment to 30 percent over the next decade. A similar trend is occurring in Malaysia, with a proposed target of 40 percent. In India the current GER is only about 10 percent and the government has announced plans for an increase to 15 percent by 2015 and 20 percent by 2020[129]. This implies the need for approximately five million new higher education places by 2015. There are similar needs from South Asian and African nations.

The demand for higher education places in Latin America and the Middle East is also predicted to grow as most countries prioritise increasing GERs.

The projections of the IDP-British Council studies previously described (Section 5) indicated that future growth in international student mobility would in particular derive from Asia. As the number of students seeking international education is roughly proportional to the numbers enrolled domestically for the country concerned, the greater the numbers enrolled the greater will be their international mobility; thus with the largest growths in domestic enrolments likely across Asia, the greater the likelihood of international mobility from there. There is a similar approximate relationship with GDP growth: the higher the country's rate of growth of GDP the larger the rate of growth in number of internationally mobile students from that country.

While it is frequently suggested that increasing local capacity for the provision of higher education places (e.g. in China) will result in fewer students from a country seeking international study, this is not generally observed. What is apparent is that there is a shift in patterns of demand, for example from undergraduate to Masters and Doctoral programmes, study aboard and student exchanges.

While there are a few country anomalies to the above-mentioned observed trends (noticeably for Brazil which has proportionately fewer students studying internationally than might be predicted for a country with its GDP and GERs), these data do provide some indication of likely future directions of international mobility.

Demographic changes

[128] Gross Enrolment Rate (GER) for higher education in a country is the total number of students enrolled in HE institutions as a proportion of the total number in the population in the student age-group (typically 18 to 23 years)

[129] Pawan Agarwal, Envisioning the Future, London: Sage 2009.

The impact of decreases in the birth rate is already being felt in many of the world's industrialised countries; the effects are now running through the higher education sector with declining enrolments. The only larger OECD country to experience over-capacity in higher education provision so far has been Japan, but other countries will be following. In the bigger OECD countries it is only the US and the UK that have yet to experience declining or no-growth birth rates.

In China the impact of the 'one-child' policy will begin to be felt form about 2015, when the most affected age group will reach the age for admission to higher education. However, to counter this the Chinese government is encouraging an increase in GERs. The net effect is difficult to predict at this stage, but indications are that in the main the international mobility of Chinese students will steady or decline by a small amount – but there will still be very large numbers given that there are currently over 400,000 Chinese globally mobile.

In India and other South Asian countries there is a population 'bulge' at the younger age groups and this will likely impact through additional demand for higher education places from about 2016 onwards. In addition to this demography-driven demand, there will be added pressure for more places due to the government's stated policy of increasing GREs to 15 percent over the next five years or so. Again a similar pattern is apparent in the lower income countries across Africa.

New approaches to delivery

There are rapid changes underway to approaches to delivery in higher education, both in terms of domestic as well as international delivery. Given that the active use of the world-wide web and its high international connectivity has only occurred over the last ten years, the fast-changing availability of new hardware, software, device mobility and platforms for supporting education are certain to result in major changes of modes of provision.

While it is impossible to conceive of the demise of the campus-based higher education experience, its 'boundary walls' will inevitably diminish. The opportunities that innovative information and communications' technologies offer will inevitably be exploited, particularly to deliver more effective and efficient approaches to higher education provision and through economies of scale. All forms of access to open content and flexible and distributed learning will be available and students might be located almost anywhere in the world.

In short it is impossible to predict how higher education will be provided in twenty years from now across the world. All we can say is that the dominance of classroom-only instruction is likely to wane and that technology will play an ever greater role.

Shift of funding to consumers

More countries now require their students to contribute directly to the costs of provision of higher education through charging fees. This has grown because the cost of higher education provision is increasing rapidly in many countries, driven particularly by policies to increase enrolment rates. This phenomenon is notably strong in lower and middle income countries. In many of the more wealthy countries, even with massification of higher education, serious concerns over equity of access still remain; it is the children from the more wealthy families who constitute the student populations and they graduate to employment with higher future income probability. Yet their subsidised costs of study have been met from all the population through taxes.

The net effect across many countries has been a trend towards charging tuition fees to 'student consumers'. This is manifested either by a relatively small fee charged to domestic students (e.g. €500 per semester in some German states; €1,800 per annum in Netherlands and £3,000 per annum in the UK) and/or introducing differential fees for international students. For the latter annual fees are about €10,000 per annum in Netherlands, £10,000 in the UK[130] and over US$25,000 for US public universities[131] – the not-for-profit US private universities charge up to US$50,000 per annum. Few countries are completely without fees, at least for international students. Sweden and Finland plan to introduce fees for international students and Denmark has already done so, leaving Norway as the only Nordic fee-free country. However in the more wealthy countries various forms of state (and subsidised loans) might be available. There are also fee and living costs' grants available for students from disadvantaged societal groups. Note that for mobility between EU member states, students from other EU states are only required to pay the domestic student fee pertaining in the university they might be attending in that country.

In the lower and middle-income countries the trend to charging fees has been driven mainly by the growth of private sector providers (both for profit and not-for-profit); public sector institutions in these countries in the main tend to be 'fee free'. The trend to (higher) fees will no doubt increase in the decades to come.

National policies on internationalisation

A global market for talent is being created with governments' targeting the recruitment of skilled professionals to meet labour market shortages. This also happens with regard to researchers and teachers in universities, particularly in the STEM disciplines. As was discussed earlier, international students are a prime source of professional staff, hence competitive recruitment programmes have become essential, led by national governments and their agencies. This trend will continue.

Research

Governments around the world are investing significantly in research and development as a means to grow their knowledge based economies. This applies to the US and Europe, but also to emerging economy countries, such as China. An internationally competitive university is one that has a dynamic research base and all indications are that practically everywhere in the world a good share of the funding needed comes from government. All evidence indicates that governments will continue to invest significantly in research (and in many places increase funding), but the dominant way of the future would definitely seem to be research grants won competitively, rather than simple baseline funding. Most EU member states, Australia and the US already have such an approach and similar policies are gradually being adopted in many other countries (e.g. India, Malaysia and China). The recent announcements from the US federal agency, the National Science Foundation[132] and the National Institutes of Health, have clearly demonstrated the Obama administration's commitment to such investment; similar policies are being expressed in other countries:

> *'The American Recovery and Reinvestment Act of 2009 (Recovery Act) was signed into law by President Obama on February 17th, 2009. It is an unprecedented effort to*

[130] See University of Sussex website: http://www.sussex.ac.uk/study/pg/applying/feesandliving.php
[131] See University of California website: http://www.universityofcalifornia.edu/
[132] http://www.nsf.gov/recovery/

jumpstart our economy, create or save millions of jobs, and put a down payment on addressing long-neglected challenges so our country can thrive in the 21st century.'

Universities will also more than today compete for grants provided by international agencies (public or private). Foreign universities already compete successfully to access funding from US federal agencies, and over US$300 million are currently contracted out to foreign research centres by the National Institutes of Health[133]. Similarly for the EU where increasing amounts are available to support cooperation in research involving member states and third countries[134].

As was discussed in Section, 3 the competition to attract the best senior researchers and research students will continue to increase. Salaries for some global research leaders can be over US$150,000.

The possible impact of change

Growth of the private sector in higher education: One major result of all the above trends and policy changes has been the growth of the private sector as a major provider (both for-profit and not-for-profit). Over 30 percent of all higher education students in the world are enrolled in private institutions – in Brazil and Indonesia, the rate is over 60 percent. Private sector colleges and universities have thus grown throughout the world for a number of reasons, among which are:

- Absorbing demand: the demand for new higher education places from the large numbers of students exiting the secondary system in lower and middle income countries cannot be met from public investment alone;
- Responding to the international market: a number of private universities have grown to recruit specifically international students – for example Webster and Schiller Universities from the US have built campuses in a number of European major cities;
- International businesses: a number of private education enterprises, particularly from the US, have been growing their international portfolio. Laureate Education has purchased a number of higher education institutions in France, Switzerland and Spain to add to its already strong business in Latin America. Kaplan has entered into partnerships with a variety of UK institutions to provide international student recruitment services and also offer foundation studies for entering university, including English language preparation.

We would, however, want to underline that the growth of the private sector, and particularly its for profit segment, is going to be most felt in the education function of tertiary education, especially in its undergraduate layer. We do not anticipate that very strong research university will evolve from for-profit providers in the short or medium term.

More demanding students: students who pay for their education from their own funds tend to be demanding regarding the services they expect. They are also globally connected through the various blogs and other information sharing websites, and they can therefore compare costs and benefits and strengths and weaknesses internationally. Additionally many students are more aware than their teachers of the potential of IT to support their learning. They

[133] 'UK–US Higher Education Partnerships: Realising the potential' Authors: Neil Kemp and Christine Humfrey. PMI2 Connect (UK)
[134] http://ec.europa.eu/research/index.cfm?lg=en

expect greater access to and application of innovation for the teaching and learning processes.

Greater competition: the drive to recruit the best students (and staff) and also to fill the enrolment gaps occurring due to falling domestic student numbers, is giving rise to much tougher competition. Thus, just like in any competitive market where the supply is limited, to be successful requires increasing investment in marketing and new programme development.

Training new academics: there is a fast growing need to train the new academic staff for the new universities, both public and private, around the world. Many countries insist that only people qualified at the doctoral level are eligible as a member of the academic staff – it is one of the only easily verifiable parameters available for quality assessment. This has tremendous implications for the supervision of PhD students. For example, it is estimated that, given growth in demand for higher education places, India will need a quarter of a million new academic staff over the next five years, yet the existing Indian universities only have a very limited capacity for research student training. This is similar elsewhere in the world. This demand provides a great challenge – and tremendous opportunity.

Demand for postgraduate and professional qualification: the increase in GERs will result in more students with first degrees entering the labour market. One way to keep ahead of the competition will be to acquire some form of postgraduate qualification. While some might see this as a 21st Century extension of Ronald Dore's study *The Diploma Disease*[135], for many universities around the world it represents a major opportunity – as was described for the United Kingdom in Section 5.

Research funding: the larger number of universities aspiring to an internationally competitive status will result in stiffer competition for research funds. But this will also likely open up new opportunities for international research partnerships, as a means to grow new interdisciplinary approaches and also to access cooperation with world-class teams, wherever they might be located.

An overall assessment of the possible policy and other implications associated with globalisation, and its possible impact on higher education, has been provided by Marginson[136]:

> *'Future developments in the globalisation of higher education are difficult to predict. There are many variables, meta-policy questions and issues. The variables include the potential for pluralisation of power in global higher education; the future mobility of people, information and ideas; language of use and the extent of cultural plurality in global exchange; and the future forms of academic labour. The meta-policy questions include the evolution of multilateralism in higher education, the development of Europeanisation and other forms of regionalism in the sector, and the extent to which policy in national and multilateral forums generates tendencies to inclusiveness on the national and global scale, in response to the tendencies to bifurcation and stratification triggered by global developments and national responses. The more immediate issues include the policy handling of university rankings and the evolution of the high priced researcher market.'*

[135] Ronald Dore, *The Diploma Disease*, Berkeley: University of California Press 1976.
[136] Simon Marginson and Marijk van der Wende, *Globalisation and Higher Education*, OECD 2007

7.2 Some implications for Estonia

The mandate for this study was for a review and analysis of experiences gained around the world in building strong and internationally-oriented universities. It did not include making recommendations on a future course for Estonia to take. In line with this, we refrain from making any proposals. We would, however, want to use this last sub-section of our report to very briefly state what we believe are the main implications of our findings for Estonia.

We believe that, when looking at the future implications of higher education in Estonia, two things need to be kept apart. The one concerns sheer quantities, or, to put it another way, the tertiary sector as a whole. The second relates to the creation, if possible, of 'internationally competitive universities', or at least one. That one is 'qualitative'.

'Quantities': the Estonian higher education sector

In order to underpin and, in the medium term, help to further a knowledge-based economy in Estonia, it will be necessary for the higher education sector of the country at least not to shrink. The sector, at its present size, would appear necessary in order to produce the skills and human resources that the country will need in the future. In the face of a very unpromising demographic trend, this is not possible by increasing domestic enrolment (which is already high by international standards). It therefore appears inevitable that Estonia will need to enrol a far higher number of international students than it currently does (at all levels, including doctoral studies). The first implication we see, with regard to numbers, is therefore the need for *internationalisation*. This would seem to include, amongst others:

- The identification of key markets for Estonia to recruit students from, i.e. those where Estonia is most likely to succeed (target countries)
- The identification of key subject areas (of national interest) in which it would like to enlist international students
- Market research to guide the above two identification exercises
- The further development of an international marketing and communications strategy for both Estonian higher education institutions and for the Estonian tertiary system as a whole, to focus on the above two, inclusive of a well-developed brand, promotional websites, in-target-country activities (campaigns) and possibly a minimum of a permanent in-country presence
- The further development of programmes, at all levels of study, to be taught in English, building on the stock of existing ones
- The development, on the basis of the existing stock, of scholarship programmes
- Benign entry and visa requirements
- Higher education institutions which display a high responsiveness to international students showing an interest of studying in Estonia.

In designing new initiatives, in the field of internationalisation as elsewhere, many countries make a new start by spilling the baby with the bath water. Estonia has a foundation to build on. The implication we see is that existing actors are doing good work, also and particularly in the area of internationalisation. They should remain involved in building the above measures.

Beyond internationalisation, but still with a view to 'quantities', we would like to suggest that a concentration of efforts only at Estonia's research-led universities would seem to meet only

part of the need. We are in no position to judge whether the country's present mix of research-led universities and teaching colleges, and its mix of public and private institutions is adequate. But we do believe strongly that a vertically stratified and horizontally diverse system, characterised by variety, has proved the right formula for serving almost every country's economy and society. Such a diverse system is also necessary as a fundament on which to build highly ambitious and internationally competitive institutions.

'Qualities': internationally competitive universities

Regardless of whether or not this would be desirable, we strongly doubt that a country of a population of 1.3 million (and declining) will be able (or well-advised) to try to grow an internationally competitive university of the sort discussed in sections 3 and 6 of this report, if only for the enormous amounts of money this would require. But such was probably not Arengufond's intention. This certainly applies to a newly created university ('from-scratch, as we call it, or 'green field', as Arengufond terms it)[137]. For the reasons stated a number of times before, we also see little sense in merging the country's two major research universities. The integration of smaller institutions into one of them might or might not be advisable, but will anyway not result in the critical mass necessary.

If it is not the intention of Arengufond for Estonia to invest in the creation of a fully-fledged institution of international rank, as we believe, our findings would seem to imply that Estonia could create a limited number of centres of excellence in particular fields, based on a 'cluster model'.

- These would need to be defined on the basis of the identification of national key needs, which we are not knowledgeable enough to advise on, but which would probably take into account and build on areas of present strength, such as ICT, for example.
- Our findings suggest that these could and should be linked to the existing research universities, but they could possibly have a semi-independent (autonomous) status, if the existing regulatory framework and conditions in the research universities were perceived as inadequate for the flexibility centres of excellence require.
- Further, and certainly in applied fields such as ICT, close links with or preferably even a formal co-ownership status of private companies in the field could be advantageous.
- International cooperation would be vital for such centres, but possibly closer forms of international institutional affiliation or co-ownership even better, such as an involvement from suitable leading research centres from around the Baltic Sea (or further afield).

Over and beyond such specific measures, our work on this study implies that it is essential, even in a time of very empty public purses, not to reduce state funding for higher education, regardless of what further (necessary) funding sources can be tapped into. It is vital not to let Estonia's existing research universities decay, not only because they would be co-owners of constructions like the ones sketched above, but also because they will continue to produce the bulk of research in the country. Top-level research, particularly in the in the STEM

[137] A possible exception could be an institution in the area of social sciences, in particular in economics and business studies, if it could be privately financed.

disciplines vital for the knowledge-based economies of the 21st century, is hardly anywhere thriving without strong state support.

Beyond that, experience from elsewhere in the world suggests that Estonia could start, or extend its current involvement, with instruments such as the following:

- Schemes like the German 'initiative for excellence', or the Chinese and Korean examples cited, which provide sizeable grants for a number of years to carefully selected centres/institutes at existing research universities (but also the above newly created ones), on a competitive basis, and, in the case of Estonia, probably best in subject areas of national interest to be defined (positive discrimination).
- Schemes aimed at staying in contact with and, importantly, re-attracting selected Estonian researchers abroad (an initiative not only to include senior researchers, but from the postdoctoral level onwards). In a select number of cases, this could be extended to 'retention' measures, aiming at keeping in the country top researchers who might otherwise emigrate.
- Further improvement in the area of the training of young researchers, particularly doctoral students, in the form of the strengthening of existing and the creation of new graduate schools, and the improvement of research career trajectories. Such graduate schools should, as a rule, have strong international contacts and enable / require students to spend part of their research training abroad. They should also recruit PhD students internationally.
- Encouragement and if possible financial support for the creation of strategic alliances with universities and research centres and with research teams in leading countries, such as the US and the North-Western Europe.

Experience from elsewhere in the world also suggests that such a broad range of measures is only likely to come off if all major stakeholders can be encouraged to 'buy in'. Actors to be involved would be, next to Arengufond, the ministries affected (minimally economic affairs and education), the existing universities, colleges and research centres, through their representative bodies, research councils and existing specialist bodies for internationalisation, and the corporate sector. The conventions of these actors could be presided over by the President or the Prime Minister, to visibly demonstrate that higher education and its further improvement is a key national concern.

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